

OXFORD HAMPHLETS 1914-1915

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The War and the Soldier's

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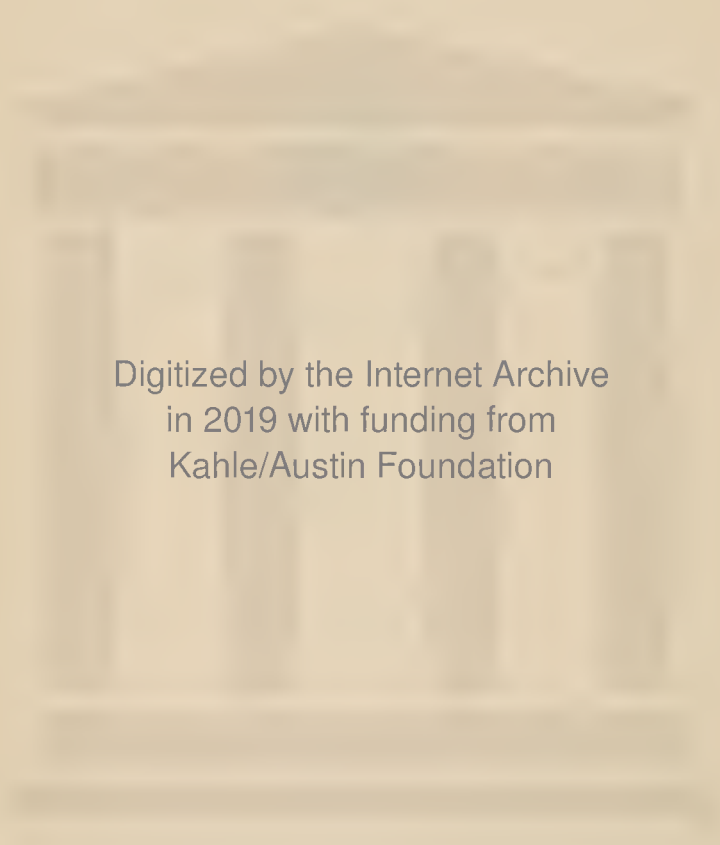
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OXFORD PAMPHLETS
1914-1915

THE FARMER IN
WAR-TIME

BY

C. S. ORWIN

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THE FARMER IN WAR-TIME

NEARLY six months have passed since the outbreak of the Great War, and it should be possible to form some idea of its effect upon the British farming industry, and of the responsibilities attaching to British farmers as the producers of a much greater proportion of the nation's food-supply than many people realize. The outbreak of hostilities found the country engaged upon the year's harvest; and as the conclusion of this work marks what is, in many respects, the beginning of a new farming year, farmers found themselves as favourably placed as might be for taking any steps necessary for organizing the industry to meet such altered conditions as seemed likely to be imposed upon it.

PRODUCTION

It was of the first importance to see what could be done to increase production. It did not need the stimulus of half a dozen great nations locked in a death-struggle to draw forth much unsolicited advice as to what should be done in the emergency; but the farmer has grown used to this kind of thing, and it may be remarked at the outset that he is not likely to allow his own interests nor those of the nation to be prejudiced thereby. It may be assumed that the farmer was already working to produce the utmost possible with the means and the ability which he possessed; his difficulty was to know in what respects his practice might be modified to increase his production. The

popular clamour was for more wheat ; other crops were to be displaced, grass-land was to be broken up ; in fact, all the rules of good husbandry were to be violated to enlarge the country's wheat area. That more wheat could not be grown without the sacrifice of some other crop, and, moreover, that wheat is not our only food, appeared to be entirely overlooked ; and farmers very speedily decided that the best course for them to pursue would be that which experience already had shown them to be best adapted to their holdings. In the words of a speaker at the London Farmers' Club :

‘ If a broad rule could express the duties of a farmer just now, as a citizen wishing to help the country, it could be expressed by saying, “ Keep your land clean ; keep it drained ; till and manure it really well and sow what suits the farm and your style of farming—give the sowing of wheat the turn of the scale.” By so doing he will be adding to the wealth of the country, and will grow as much per acre as the nature of the land permits.’¹

Accepting this, it only remains for the farmer to see to it that nothing on his part is left undone to secure the maximum production. A good deal might be accomplished by the judicious use of artificial manures on a larger scale. Many men do not realize to the full the advantage to be gained by the systematic use of these fertilizers. They supply food to the young crops in an easily assimilable form, and enable it to grow away quickly at the start, and so to be more independent than would otherwise be the case of the various adverse influences which may assert themselves from time to time during the development of the plant. Fortunately our supplies of artificial manures are independent of enemy producers with the single exception of potash

¹ H. Trustram Eve, *Journal of the Farmers' Club*, November 1914.

compounds. The world's supply of potash is mostly derived from the great mines of Prussia, and the price of potash manures is now more than ten times the normal. This is prohibitive, and though we are told that something may be done locally to supply the deficiency by the burning of seaweed, and such-like expedients, there is little doubt but that farming generally must make shift as best it can in this respect, until happier days.

Reference has been made to the suggested breaking up of grass-land. There is a great deal of grass-land of very moderate quality, all of which was at one time under the plough; and opinion is divided on the question whether the proper course to be pursued with it is to try to improve it as grass, or to bring it under cultivation. During the period of low prices for agricultural products, grass-farming attracted by the fact that it reduced the labour bill, and the problem of the farmer in those days was how to reduce expenditure rather than how to increase production; but it is a question whether this fear of the cost of labour has not outlived its day. Arable farming entails more risk, requires more capital, and makes greater demands on the skill and the energy of the farmer; on the other hand, it employs more labour, both directly and indirectly, and production is, in the majority of cases, much greater. If one of the changes arising out of the present situation should be an increase in the area under the plough it would prove advantageous at once to the nation and to the whole agricultural community.

As regards the production of meat and dairy produce, the War has done little to divert the supplies of those feeding-stuffs upon which the farmer depends so largely to supplement his home-grown stocks, although the

prices in many cases show a considerable advance. At the beginning of hostilities the Government prohibited the export of milling offals, and this has had a very material effect upon the price of bran, &c. Perhaps the most interesting thing about the feeding-stuffs position is the possibility of large supplies of new products, owing to the diversion of German trade. To quote an example, Sir Owen Philipps, chairman of the West African Section of the London Chamber of Commerce, is taking energetic steps to induce English oil-seed crushers to take up the trade in palm kernels. It seems that these nuts have been imported into Germany, almost entirely from our colonies, to the value of more than £5,000,000 annually, the oil being expressed for the manufacture of margarine and soap, whilst the residue is marketed as cattle food. The enormous and increasing demand for vegetable fats and oils should make the further development of this new crushing industry, in which a beginning has already been made, advantageous alike to the crusher, to the farmer, and to the consumer of butter substitutes.

Any shortage of feeding-stuffs appears most unlikely, and the rise in price of meat should go far to compensate the feeder for advance in the cost of food due to the dislocation of transport of raw material. But the cow-keeper is finding himself in a very different position. It is a curious fact that in case of the only farm product in which we have an absolute monopoly, namely, new milk, the price is not controlled by the supply and demand, but the custom is to sell it at fixed prices. Most farmers contract for the sale of their milk six months, or even twelve months in advance, and as a result of the rise in price of feeding-stuffs, the cost of production is now estimated to exceed, in many cases, the price realized. Even before the War many men

complained that the margin of profit was insufficient, and this, combined with the increased expense involved by present and prospective legislation to ensure the purity of the milk-supply, will undoubtedly cause a rise in the retail price before very long.

Another matter which comes into prominence at this time, when the importance of increased production is so apparent, is the prohibition of the importation of live cattle. Owing to the fear of the introduction of contagious diseases, all cattle arriving in this country have to be slaughtered at the port of arrival, and thus the home breeder of stock is in the enjoyment of an absolutely protected industry. It is very desirable to leave nothing undone to protect our herds from disease, but it must be remembered that the effect of the means adopted has been to raise the price of 'store' cattle to a figure which, until the very recent rise in price of fat stock, allowed the feeder no direct profit at all. The relaxation of the order prohibiting the importation of live cattle would have a very material effect on the cost of producing meat, but only those in authority can tell whether this might not be attained at too great a risk. Anyhow, it behoves the British breeder not to waste the opportunity by breeding any but the best commercial stock.

In many directions advantage is being taken of the upheaval of trade to endeavour to establish new industries in this country in commodities for which we have hitherto relied upon enemy producers. Agriculture does not offer much scope for enterprise of this kind, but reference has already been made to the trade in oil cakes, and another matter to which serious attention is now being devoted is the question of beet-sugar production. It is well known that a great industry has

been built up upon the Continent, and that but for the prompt action of the Government in securing large quantities of cane sugar at the commencement of hostilities, our dependence on German beet-sugar might have affected us very seriously. For several years past the attempt has been made to interest British farmers and capitalists in the industry, and in the year 1912 a factory was erected in Norfolk, but owing to a variety of circumstances its success has not been conspicuous. The rise in the price of sugar, exceeding as it does 100 per cent., has entirely altered the situation, and the opportunity now presents itself for erecting factories in selected districts, the greater part of the cost of which might be written off, during the first year or two of their existence, out of the abnormal profits likely to accrue to them. At the same time prices would allow of liberal treatment of the farmers during the time that they were gaining experience of the culture of the unfamiliar sugar-beet. With the return to normal prices the industry should be well established upon a sound financial basis; and although sensational profits could no longer be expected, the farmer's economic position would be strengthened by the addition of another line of production.

In many places we have grown familiar with the spectacle of the men of the new armies busily engaged upon the excavation of trenches and the erection of wire entanglements, either for defensive purposes or for practice. Here, of course, is a direct though unavoidable interference with production; but it may be of interest to note that in all such cases, as also in case of damage done to land or crops by manœuvres, rifle ranges, &c., the land is seized under the Defence of the Realm Act, 1914, and the War Office has surveyors

engaged upon the assessment of such loss as may be sustained from these causes.

PRICES

The movements in prices of agricultural produce have been rather surprising. For the first few months of the War no considerable rise in corn or meat was experienced, and persons were found who advocated the giving of bounties, or at least of guarantees, by the State to ensure the sowing of a fair proportion of wheat. Then, about Christmas, a pronounced upward movement set in, and prices of corn advanced to a figure not previously known within the memory of the majority of men, wheat surpassing even the level to which it rose when the American gambler, Leiter, attempted his 'corner' in the early part of the summer of 1898. A variety of explanations are given, and they need not be repeated here; none of them is quite satisfactory in itself, but the point to be emphasized is that the rise in the cost of living is in no way due to any action by the British farmer in holding up supplies or in otherwise manipulating the markets. The price of food-stuffs is quite beyond his control, and those few who are attempting to accuse him of exploiting the needs of his countrymen are deserving of the severest censure. It is satisfactory to know that the question is engaging the attention of the Government, and it should always be remembered that the more surprising thing is not the rise in prices, but the fact that, in the prevailing economic conditions, the rise has not been more pronounced.

It was inevitable during the early days of mobilization, when forage, horses, &c., had to be provided in vast quantity and without delay, that excessive prices

should have been paid on occasion. One dealer boasts that his average profit on each horse sold to the Army has been £15, and cases are numerous of excessive charges for forage. To meet the situation, the Board of Agriculture and the War Office evolved a scheme for bringing farmers into direct communication with the district purchasing officers. County committees of farmers have been set up, to whom the officer makes known his wants; the committee then fix maximum prices for the various commodities (as buyers, not as sellers) and proceed to invite supplies from farmers. There have not been wanting persons who complain that the position is an impossible one, because it makes the farmers buyers and sellers too; but experience has shown that the authorities have sound grounds for their confidence in the integrity and the patriotism of the farmers; and the President of the Board of Agriculture and also a representative of the War Office have spoken of the scheme as being the greatest success, not only in saving money, but also in scheduling the agricultural resources of the country.

LABOUR

The first obvious need of the country was for more men rather than for more food, and a great appeal was made to the sturdy country dwellers to join the colours. Not only was this done by the means universally adopted, by poster, by meetings, and by advertisements in the country papers, but landowners, agents, and farmers were specially appealed to in a circular bearing the signatures of some of the highest in the land, pointing out to them the necessity for explaining to the young farm-workers the urgency of the country's need, and their obvious duty. The harvest which followed the

great drought of 1914 was quickly got in, and the continued fine weather enabled farmers in certain districts, where the soil was not baked too hard, to get well forward with their autumn work. The break in the weather which set in shortly after, and which has continued since without intermission, coupled with this forward state of the work on many farms, had the effect of lowering the demand for labour, and gave a fresh stimulus to recruiting for the new armies. It cannot be said that, speaking of the country generally, this exodus of young men has caused any serious dislocation of the agricultural industry up to date. With work well in hand and horses confined to their stables day after day through bad weather, the difficulty is one of the future rather than of the present, though here and there the shortage is already being felt. At farmers' meetings up and down the country serious misgivings are being expressed as to how the work of the busy spring season is to be got through. It is pointed out that the country is being denuded of its workers by vigorous recruiting campaigns, whilst at the same time the farmer is being urged to concentrate all his powers on an increased output of food during the coming year, and the two things are antagonistic. The difficulty will centre round the horse-work; most of the stockmen and shepherds are middle-aged and married men, and they are assisted often by lads not yet of military age. But the horse-labour is chiefly undertaken by the young unmarried men, and this, of course, is the class which has responded so largely to the country's call to arms.

Grave doubts are now being entertained whether the farmer has been well advised in encouraging his young men to join the Forces in such large numbers.

It is well known that these men make the best soldiers. They are accustomed to life in the open air under all sorts of weather conditions; they are handy with tools, and they understand horses and harness. In fact, they are better equipped by nature and by vocation for active service than any other class of the community. At the same time they are engaged upon work of first importance to the nation. This war has upset many theories. In spite of our overwhelming sea-power, and notwithstanding the fact that there is no world shortage of food-stuffs, we have seen how the dislocation of transport, necessitated by the movement of troops and supplies across the water, and further, the withdrawal of tonnage due to the internment of enemy cargo fleets, can send up the price of food in a few weeks. Further, we have had evidence of the mischief that can be done by commerce-destroying enemy cruisers. It does not require much imagination to foresee circumstances in which the nation might be thrown temporarily upon its own food resources, and whilst it is not unreasonable to suppose that these might be found equal to the strain imposed upon them,¹ it is obvious that no stone should be left unturned to secure the maximum production at home. It is common knowledge that in certain trades engaged in the supply of munitions of war and equipment for the Army, recruiting has been strongly discouraged instead of being stimulated by every possible means,² and surely agriculture should stand first amongst such industries, for the ability to

¹ See R. H. Rew, *Food Supplies in War-Time* (Oxford Pamphlets, 1914).

² A Member of Parliament, addressing a village recruiting-meeting in September, told his audience that it was the duty of the farmer to dismiss all his single men immediately after the harvest had been secured.

feed the population is equally as important as the supply of guns, ammunition, or other equipment to our armies.

It is the prayer of every one that our country will never find herself plunged into war on such a scale again; but should the present conditions recur at some future date, the proper course would appear to be to keep the ploughman to his job, unless, indeed, the time should come when every able-bodied man was required for the defence of his home.

The shortage of *unskilled* labour is hardly likely to continue after the War. Until the passing of the trade depression which is almost certain to follow it, there should be an abundant supply of labour, and moreover there will probably be a large number of men drawn from the business establishments of the towns who, on coming back to civil life, will be reluctant to return to the desk or to the counter after experiencing the joy that comes from complete physical fitness—such fitness as can hardly be attained to except by manual employment in the open air. The difficulty which will face the country then will be how best to find employment for all the labour which will be available.

The immediate effect of the present shortage is being shown in various ways. It is agreed all over the country that the position on the farm in the spring will be serious, and much apprehension is felt as to the course of events. Most of the men thrown out of employment in certain trades by the War have already been absorbed into the Army or into other trades unaffected or even benefited by the War, and it is remarkable that there has been less unemployment during the first part of the winter of 1914–15 than during the corresponding period of the previous year. Some of the older farmers and the

faint-hearted who are already feeling the shortage talk of giving up the struggle, and the following utterance of a mid-Lincolnshire agriculturist expresses their point of view :

‘ Only farmers know the true position about the shortage of labour in the villages. You read about it in the papers, but no one can realize what it means to men like me. I farm between 400 and 500 acres. Ten years ago I employed two foremen, eight labourers, and had three married wagoners and four single chaps living in. At times I had two or three casual men, and also three “ day boys ”. Very often there were twenty hands to pay on a Saturday night. Many people may not believe it, but my books will prove what I am saying is correct, that last Saturday I had only nine men and one boy to pay. Instead of me wanting over £18 a week for wages, as I did last January, £10 is now ample. Some people are foolish enough to say, “ Yes, look at the money you are saving in wages.” It takes me all my time to keep my temper when people talk such rot. Instead of saving money I am losing. Last week I had two pairs of horses idle, because I was short of men to work them. Four horses standing idle in the stable does not pay a farmer when there is plenty of work wants doing. I cannot get day boys; they prefer to go to Lincoln and learn a trade or work in the foundry. The result is I have men doing boys’ work. Early last year I raised the wages of my labourers to 18s. a week, but they are now asking for £1, and if I want my stock looked after and the farm worked I shall have to pay it. This winter I have had to start milking my own cows, after seeing others do the work for twenty years. At one time the servant girls in the house did the milking, but they can’t be found to do it now. It has come to this : I have made a bit of money, and rather than go on as I am doing now I mean to chuck it. It is my intention to give up all my land this next Lady Day and live on what bit I’ve made. Since harvest I have had to come home from the market before three o’clock—often before I had done all my business. I have done

my own shepherding this last summer, fed the pigs and calves, milked the cows, been my own groom and gardener ; in fact, I have always been at work Sundays and weekdays alike. At night I have had to do my books, and instead of things getting better they are gradually becoming worse. I have only one old man on my farms who can look properly after my hedges and ditches, and he is well over sixty. It is not altogether the War that is to blame for the present state of affairs. There are many concessions which will have to be granted before long, and some of them, I am certain, will be a half-holiday on a Saturday, and better houses. It is a question which will have to be solved by Parliament if the land is to be kept in cultivation.' ¹

It is obvious that there are other influences at work besides that of the War, but the majority of men, whilst keenly anxious as to the outlook, are setting themselves to meet the difficulty in one way or another. The Labour Exchanges are at present less useful to the farmer than to those in other forms of industry. Situated in the big towns they are not very accessible, and the average townsman out of work is almost as useless on the farm as the farm worker would be in a factory. It would be worth while for those in charge of the Exchanges to ascertain the needs of the agricultural industry more exactly, and possibly to modify their hours of business, for it sometimes occurs that the Exchanges are closed on those very days on which the agricultural population is in the habit of resorting to the towns. It ought to be possible to supply a good deal of labour for the less skilled forms of farm work in times of trade depression in the towns. In some places Belgian refugees are being employed, and advantage might be taken of their presence amongst us to assist in the

¹ *Mark Lane Express*, January 4, 1915, p. 8.

establishing of the sugar industry to which reference has already been made. At the same time the shortage generally is not likely to be relieved by Belgian labour, and farmers will have to get out of their difficulty in most places by resorting to boy-labour and to labour-saving appliances. It has always been a grievance of the farmer that the Education Act deprived him of the services of boys until they were too old in many cases to take readily to farm work. This is, of course, a debatable point; but it is a fact that on Education Committees, and at meetings of local farmers' associations all over England at the present time, the demand for the temporary relaxation of the Act is being made. Probably this demand will be conceded—not by any definite action on the part of the Government, but rather by an intelligent and liberal interpretation of the situation by the local education authorities. The position with regard to the employment of schoolboys on farms was discussed by the Yorkshire Farmers' Union at Doncaster recently, and a letter from the Board of Education was read as follows :

‘ The Board of Education have no power to abrogate the law regarding school attendance and juvenile employment. Consequently they would be unable to grant legal exemption to boys over 12 years of age from attendance at school. It may, however, be pointed out that in many districts by-laws relating to school attendance contain provisions under which children can, under certain conditions, be exempted either totally or partially at 12 or 13. The administration of the law relating to school attendance rests with the local education authorities, and the Board suggests that if farmers in any district are experiencing special difficulty in carrying out the necessary agricultural operations through the scarcity of labour, they might bring the matter to the notice of the local education authority. The Board understands

that the general question of agricultural labour is under the consideration of the Board of Agriculture, which Board can no doubt afford assistance and advice.'

Reading between the lines it may not be too much to suppose that here is a suggestion to the County Education Authority to acquiesce in the withdrawal from school of likely boys for employment on the land at this critical time.

Many persons are advocating a reversion to female labour on the farm, particularly for such work as milking. The circumstances in which female workers are obtainable are not easily explained. Why, for example, should so many women engage in agriculture in Kent and in Durham, both of them counties in which the rate of pay for their men-folk is high, whilst in low-wage Oxfordshire female labour is almost unknown on the land? It is certain that women generally do not take kindly to farm work, and it is very doubtful whether their employment on it is desirable; for their presence in numbers would depress the general rate of wages and the standard of efficiency, whereas it will presently appear that much is to be hoped for in the agricultural industry from an advance in both these matters.

As to labour-saving machinery, the farmer is frequently debarred from using it by the costliness of those things which will displace manual- and horse-labour on any scale. It is accordingly of particular interest to note that a group of men in the Isle of Wight have combined under the pressure of circumstances to purchase and own machinery and implements in common. With the assistance of the Agricultural Organization Society, the 'Isle of Wight Farmers' Agricultural Outfit Society, Ltd.', has been registered, and it began operations

about Christmas-time by hiring out a steam plough to its members. Here is a form of co-operative enterprise which might spread rapidly into other districts. Internal combustion engines in the form of motor tractors have been in use for several years; but whilst nothing like so costly as a steam ploughing set, their price is very considerable, and there are other considerations besides price—for example, their weight—which makes them unsuitable on very many farms. But recently there has been put upon the market a little agricultural motor for ploughing, cultivating, and other farm work, at a price considerably below that of a team of good horses. It can plough more acres and it can work longer hours than horse-labour can do, thus speeding up the work to an extent which would be worth untold sums to the farmers of this country in ‘catchy’ weather. One of his great difficulties is to get his cultivations performed exactly when the land is in the best condition, and the means to execute these operations at speed at the right moment would render him independent of adverse weather conditions to a much greater extent than has been possible in the past. In other directions there is a great variety of labour-saving appliances by no means costly, but nevertheless seldom met with. The scarcity of milkers is universally deplored, yet even in the great dairying districts milking machines are almost unknown, whilst such things as potato diggers, shearing machines, and even manure distributors are much too rare. It seems likely that the present crisis may bring about something approaching to a revolution in these matters, and with it a readjustment of the position of the agricultural labourer. This war has not been the *cause* of the labour difficulty—it has merely brought it to a head

for the shortage has existed, and has slowly been getting more serious, for a long time. The causes are, of course, a matter of controversy.

‘ The farmer’s general complaint is that the majority of his men are not worth their wages, and that is very probably true ; they will have to be more highly paid still before they will earn their money. Men are paid far too much by customary scale, whether they are good or bad workers, and the farmer does not sufficiently consider how he can make them earn more both for themselves and for him. There is very general complaint that the knowledge of the old crafts is dying out ; draining, ditching, brushing and laying a hedge, thatching, &c., are nowadays usually in the hands of quite old men, and no successors are in sight. In many cases the master ought to be taught to dispense with the craft rather than the men to practise it. For example, sheep-shearers are scarce in many districts, but, instead of instructing men in the use of the shears, it would be wiser to show the master the advantages of a machine. Similarly, Dutch barns are more economical than the best of thatchers. The technical education of the labourer can best be left to the farmer, and it is mostly nonsense to complain that it is our system of elementary education that is driving the men off the land. In a sense, all kinds of formal education tend to unfit the pupil for practical life. . . . But the town suffers equally with the country from the education which is based not on the work which lies round about, but on the off-chance of making a career. Even a career generally turns out no great thing, the career of a minor functionary only, for our millionaires seem to have been trained rather by their practical life than by their education. Men have left the land because fewer men have been needed per acre with every introduction of machinery, and indeed it is the better ideal to be able to manage a farm with two men per 100 acres minding machines and earning 30s. per week, than with ten men digging or its equivalent at 10s. a week each. Actually the contrast is not so

bad as that, but still many farmers waste manual labour because it is comparatively cheap.

Nowadays, two main factors are driving the youngsters away from the farms: the lack of a chance to rise to any sort of a position, and the deficiency of cottages.¹

The extension of the use of machinery would give to the more intelligent labourer the opportunity for raising his economic position to the level of that of the skilled mechanic in other forms of industry, and with this the housing difficulty would settle itself.

Thus it may be that the great disaster in which we are involved may give a great and much-needed stimulus to the further industrializing of British agriculture, and may do more to solve the problem of the rural worker than could have been accomplished in a generation by the operation of ordinary economic forces.

¹ A. D. Hall, *A Pilgrimage of British Farming*, p. 443.

OXFORD PAMPHLETS
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BRITISH & GERMAN
STEEL METALLURGY

BY

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OF SHEFFIELD

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IN *The Times* of January 23, 1915, there appeared the following paragraph :

CIVILIZATION AND 'KULTUR'

Professor Rein, of the University of Vienna, in an article on 'Germany's Unpopularity', offers the following definition of *Kultur* :

We Germans distinguish between civilization and *Kultur*. By civilization we mean the work which embraces the control of nature for the raising and perfection of external conditions of life. By *Kultur* we mean the efforts directed towards the organization of a people's life, in which the highest ideals of religion, morality, art, and science are to come to realization. Here the human will is directed towards the most difficult and deepest problems of humanity. A people which is satisfied with mere civilization is no *Kultur* people. In the intellectual sphere the Germans have acquired a leading part in deeds which benefit humanity. The superiority constituted by this fact is, it seems, inconvenient for many peoples. Thence arises the dislike which the weaker is very apt to feel for the stronger.

If Professor Rein's dictum that 'by civilization we mean the work which embraces the control of nature for the raising and perfection of external conditions of life' be true, then the work of the scientific steel metal-

lurgist constitutes the greatest civilizing agent the world has ever seen. In the June number, 1911, of the *Revue Economique Internationale*, edited in Brussels by M. Paul Doumer, ex-President of the French Chamber of Deputies, a professor in a British University concluded an article on the Iron and Steel Industries of Great Britain in the following words :

The man in the street comprehends very imperfectly the enormous importance to humanity of the metallurgy of iron and steel. If one enunciated the proposition that the greatest agent of civilization the world has ever known is steel, divines and statesmen, artists and lawyers, authors and leather-makers would tumble over each other in their haste to prove the absurdity of such an affirmation. Nevertheless, if one could take away from the world that alloy of iron and carbon called steel, in less than a century humanity would have taken a huge step backwards towards barbarism. Imagine this planet without steel and iron, and we have a world without railways, without steamships, without great bridges, and without machinery : in a word, a community incapable of producing the thousand-and-one articles which constitute the necessities of modern civilization.

But unfortunately a truth has more than one side. If the shield be reversed one contemplates an aspect of steel metallurgy not only hideous but presenting a brutality hardly surpassed in the annals of barbarism. Imagine an 1800 lb. shell fired miles away from the barrel of a 15-inch naval gun, penetrating the armoured turret of a battleship and bursting therein its fiendish charge of high explosive ! In the twinkling of an eye the inmates of that turret, composed of accomplished officers and gallant bluejackets, become loathsome masses of torn and bloody flesh and shattered bones. This, however, is an inevitable product of that ' Kultur ' originally

enunciated by Frederick the Great of Prussia, whose creed was embodied in the following words :

He is a fool, and that nation is a fool, who, having the power to strike his enemy unawares, does not strike and strike his deadliest.

It would be interesting to know if Professor Rein considers that one of the ' highest ideals of science ' has been realized in such engines of naval warfare. Scientifically developed, such *Kultur* mainly becomes the ' armed menace ' which, for the last fifteen years, has always been hovering over the North Sea, at first as a cloud no bigger than a man's hand, then as that threatening blackness which, six months ago, burst in storm, and is now shaking the civilized world to its foundations : and the handmaiden of all these horrors is steel.

THE STORY OF CUTTING-STEELS

The early history of wrought-iron and cutting-steel metallurgy is shrouded in an almost impenetrable obscurity. The meagre data obtainable are rare, and consist of casual references in prose, poetry, and monastic records. That steel, or rather steely iron, obtained direct from the ore, was known to the ancients about 800 B.C. seems to be proved by a passage in the ninth book of Homer's *Odyssey*, which can only have reference to steel. It was translated by Pope thus :

And as when armourers temper in the ford
The keen-edged pole-axe or the shining sword
The red-hot metal hisses in the lake :
Thus in his eye-balls hissed the plunging stake.

In Great Britain, perhaps from a lack of interest on the part of literary men, or more probably from the

secretive habits of steel-makers, which endure even to the present time, there is no early mention of the art of producing steely iron.¹ In one of the later volumes of the Domesday Book there is a record of an ironworks of considerable extent at Kimberworth, near Sheffield, worked by the monks of Kirkstead Abbey in 1160.

Scott, who visited south Yorkshire to gather materials for his romance *Ivanhoe*, appears to have obtained information which suggests that amongst other things the works round Sheffield made common armour for the use of men-at-arms, whilst the knights wore the fine steel mail wrought abroad, especially in Milan and Toledo. In Scott's description of the 'Siege of Torquilstone', he puts into the mouth of Robin Hood (Locksley) the following words :

Thrice did Locksley bend his shaft against De Bracy, and thrice did his arrow bound back from the Knight's armour of proof. 'Curse on thy Spanish steel coat,' said Locksley; 'had English smith forged it, these arrows had gone through an as if it had been silk or sendal.'

The period to which Scott's novel has reference would be about 1196.

The steel industry of Sheffield seems at least six hundred years old. Chaucer in 1386, in *The Reeve's Tale*, in describing a miller of the time of Edward III (who was crowned in 1327), says 'a Shefeld thwytel bare he in his hose'. This seems to indicate that the

¹ Until comparatively recently in Zululand the heads of assegais, battle-axes, &c., were made by peripatetic families of ironworkers who visited various centres along the Zululand belt of iron ore, and by means of charcoal produced and afterwards forged into shape lumps of steely iron. Their operations were always conducted in secret, and these families seem, to a large extent, to have detached themselves from their fellows.

fame of Sheffield cutlery was so well established at that time in the south of England as to have reached the ear of a London poet. Macaulay states that Sheffield made no fine steel till about 1750, but in 1590 Peter Bales, in *The Writing Schoolmaster*, recommends Sheffield pen-knives and razors for cutting quill pens, for which purpose fine steel is indispensable. In 1760 Horace Walpole, writing to George Montague, remarks: 'I passed through Sheffield, which is one of the foulest towns in England in the most charming situation. There are 22,000 inhabitants making knives and seissors. They remit £11,000 a week to London.' Antiquarians state that the reason why Britain's chief steel industry originally settled round Sheffield was the juxtaposition of iron ore and coal in the district. To a metallurgist this argument is unconvincing, because charcoal and not coal was the fuel used, and the small deposit of iron ore existing near Sheffield was clay iron-stone, so impure with phosphorus as to be unfit to be the source of fine cutting implements. The real reason why, hundreds of years ago, the steel industry settled mainly at Sheffield was the unique situation of the town, which lies in a valley watered by the river Don, which runs into the Humber at Goole. Four other valleys to the west of Sheffield have each a rivulet, namely, the Sheaf, the Loxley, the Rivelin, and the Porter. These little rivers have their confluence with the Don at Sheffield. Thus by the construction along these five rivers of small dams, water-power was obtained at a low cost to work the tilt hammers and turn the grindstones of the old-time cutlers. The region was well wooded, and hence could produce a sufficient supply of charcoal. In addition, refractory materials for furnaces and millstone grit for grindstones were plentiful in the neighbourhood. The

basis metal from which the old Sheffield steel was prepared by cementation in charcoal was the wonderfully pure bar iron of Scandinavia¹ and Spain, which was brought by pack-horses or by water-carriage from Goole. In 1442 the citizens of Sheffield obtained a royal warrant permitting them to make tow-paths along the river Don. There is positive evidence in the accounts of the Sheffield Church Burgesses for 1557 that Danish and Spanish iron were then being imported into Sheffield. The price in present money works out to about £60 per ton. The two items in the Church Burgesses' accounts are as follow :

Paid to Robert More for one stone and quarter of Danske Yron XXIIId.

Paid to ye same Robt. for X lib of Spanysche Yron XVd.

There is evidence that in the beginning of the eighteenth century cutlery and other steels were also being manufactured in London, Birmingham, and Newcastle.

Up to 1740 all steel was made by hammering bar iron carburized by cementation, and was known as blister steel or shear steel according to the amount of forging work put upon the carburized bar iron. The name 'shear steel' was due to the fact that the cloth-workers of the country insisted upon having this steel for their cloth-cutting shears, and at the present time this kind of steel is always branded with rude representations of cloth-cutting shears.

About 1740 the crucible fluid-steel process was invented in Sheffield by Benjamin Huntsman, of Doncaster, and in 1752 he commenced to manufacture on a considerable scale, so founding an industry destined to become

¹ Many thousands of tons of this fine iron are at the present time imported annually into Sheffield from Sweden.

permanent and world-wide. Indeed at the present time Krupps, at Essen, are making gun-steel ingots, each weighing 110 tons, by the process evolved from the brain of an Englishman 175 years ago. It will be seen later that, in reference to scientific steel metallurgy, Germany, by the cunningly devised and mendacious paragraphs of her pressmen, has endeavoured to convince the world that in scientific steel metallurgy German *Kultur*, as in all other branches, is supreme.¹ This idea is not in accord-

¹ At the same time it is only fair to Germany to state that their megalomania in connexion with metallurgical science has been aided and abetted by many English public speakers, who, ignorant of the facts, in effect took up with reference to technical education the offensive German parrot-cry, 'Deutschland über alles.' A partial awakening, both of German and English educational dreamers, was brought about by an eminent and also honest German professor, who attended the Steel Congress in Sheffield in 1905.

Speaking on the Education Estimates on October 11, 1905, the Lord Mayor of Sheffield said :

'A fortnight previously the Iron and Steel Institute had visited Sheffield, and among the company were several foreign gentlemen who were authorities on technical and other education, and who looked most minutely into our educational system. They went round the Technical School and University, and made other inquiries. They were leading educationalists of their country, and not leader-writers of newspapers (Laughter). One of them was Dr. Wedding, who would not write what he did not think was true. Commenting in the *Cologne Gazette* on the metallurgical department, Dr. Wedding had said : "A most hospitable opportunity was given for the inspection of this department. The University in question has, in addition to its medical, philosophical, and philological faculties, also a very important department for applied sciences, viz. machine-construction and metallurgy. Fifteen years ago a small pioneer institute for practical metallurgy had already been established, to which has now been added a complete plant for steel production, for the use of students. A small Bessemer converter, a 2-ton Siemens-Martin furnace, a cupola, hammers with re-heating furnaces, also gas and coke crucible furnaces, form the basis for a plant supplemented by numerous laboratories : such plant as is, in this form, totally unknown by us in Germany. With us the same purpose can only

ance with the facts. In naval construction, for instance. Germany has followed closely the lead of Britain. After sneering at the size of the guns of our huge super-Dreadnoughts, the *Warspite* and the *Queen Elizabeth* (which have a speed of about 25 knots and a main armament of eight 15-inch guns, each throwing 1800 lb. shells), Germany soon feverishly began to follow suit by starting to build the *Ersatz Wörth* and the 'T', each probably having a speed of about 23 knots and having eight 15-inch guns for their chief armament.

The names of the Britons, including admirals, naval architects, engineers, and metallurgists, whose genius brought these giants into being, are to a great extent unknown and will remain unknown to the man in the street.

To revert to the development of British metallurgy, Robert Forrester Mushet, about 1858, discovered the remarkable influence on tool steel of the element tungsten, and up to about 1870 seems to have been patiently experimenting in the Forest of Dean. At the latter date he commenced to make 'Mushet Steel' on a considerable scale in Sheffield. Mushet's invention, although subjected to the discouraging predictions of Dr. Percy, of the Royal School of Mines, was destined to be the

be obtained by the year of practical work laid down for students at German Technical Schools. The duration of the courses of study in the metallurgical as well as in the machine-construction department, which are equipped equally well, is fixed to three years for day students, whereas the evening students, who are said to number 1,200, require at present seven years of hard work to achieve their purpose. The extensive new equipments give one the impression that the well-known complaint of English people, that in the way of education they are much behind, does not apply any longer to Sheffield, particularly not as regards the metallurgic and machine-construction sections. On the contrary, there is much, indeed very much, for Germany to learn there."'

pioneer of a revolution in the art of cutting-metals, an operation imperfectly realized by most people, but nevertheless of vital importance to the development of the arts of war, and in the arts of peace to the comfort and well-being of humanity. The plain carbon Huntsman type of steel, although, after quenching from a red heat, it possessed the hardness of rock crystal, was thermally unstable and completely broke down with the heat of friction at a temperature of 300° C., thus reverting to its soft state. Mushet's tungsten steel, later fortified with a little chromium, was thermally much more stable and hence could be run at higher speeds with greater cuts and traverses on the lathe. Thus mechanical engineers were able to accelerate their outputs of machines for use in the industrial arts of peace (and war), a fact of far-reaching economic importance in view of the rapidly increasing population of the world. The gradual development of the cutting power of Mushet's pioneer type of steel proceeded by cumulative improvements from 1880 to 1912; it was influenced in 1900 by the discovery in what is now the University of Sheffield of the astounding influence on steel of relatively small quantities of the somewhat rare element vanadium, an influence which, unlike that of tungsten, extended also to structural steels. In connexion with the latter it was found that the vital factor of structural steel known as the elastic limit, could be almost doubled without an undue sacrifice of toughness and ductility. By reducing the carbon in the original Mushet steel from 1.8 to 0.7 per cent., much increasing the tungsten and chromium, largely reducing the manganese, and adding 1 per cent. vanadium, the thermal stability of the cutting hardness was easily doubled, rising from 300° C. to well over 600° C. In fact such steel can be run for several minutes

cutting cleanly at a red heat, a proposition which, twenty years ago, would have been regarded as capable of enunciation only by a madman. The net result of the researches in British cutting-steels which were made between 1740 and 1912 has been in certain cases an improvement in cutting-power of about 900 per cent. Messrs. Taylor & White, associated with the Bethlehem Steel Co., of America, first exhibited to the engineering world, at the Paris Exhibition of 1900, tool steel running at a low red heat. An example of German jealousy of British supremacy in the science of manufacturing high-speed tool steel was comparatively recently exhibited by a German firm, which added to the composition of standard Sheffield steel the element cobalt, and under the authority of a certificate from Charlottenburg claimed that the new German steel was twelve times as powerful as the best British product. This obviously absurd statement was challenged by both British and German steel-makers, and researches in Sheffield University have since shown that the claim is without foundation in fact, because upon the cutting power of the best type of high-speed steel the element cobalt has no influence whatever. It is interesting to know that this German steel was largely advertised as 'iridium' steel, possibly because in its composition iridium was conspicuous by its absence.

THE STORY OF STRUCTURAL STEELS

In this, the 'Steel Age', it is a little difficult to realize that, in the first half of the nineteenth century, the materials of construction for bridges were either cast or wrought irons. The materials for railway work were cast and wrought irons with a limited amount of costly crucible steel. Wrought-iron rails lasted about five years, steel

rails last from fifteen to twenty years. Ship and boiler plates were exclusively of wrought iron, and the same remark applies to the early armour plates for battleships. In 1856 Henry Bessemer, a native of Hertfordshire, invented his pneumatic process for the purification of molten pig-iron. British and other scientific societies originally regarded his plans with a more or less tolerant amusement. For the tedious and laborious puddling of pig-iron into wrought-iron, he proposed to take a mass of say ten tons of molten cast-iron and to blow through it a strong blast of air and so oxidize its impurities, present to the extent of about 7 per cent., and thus obtain a mass of say nine tons of pure iron. In the early sixties he started a works at Sheffield: other firms took up the process under royalties and the 'heavy' steel industry of Sheffield was thus founded. In most text-books and by many lecturers the Bessemer process has been hopelessly mis-described. It is almost invariably stated that it consists in first blowing out all the carbon, and then converting the resulting iron into different kinds of structural steel by adding suitably differing amounts of carbon contained in the alloy called spiegeleisen. The facts are as follow: Bessemer's blown and purified iron was so full of dissolved oxygen as to be absolutely useless for a commercial product, because it would not pour soundly nor would it forge at all, but fell to pieces under the hammer at a yellow forging heat. The process was made a success by an invention of Mushet for deoxidizing molten iron by the addition of metallic manganese, which seized the oxygen dissolved in the iron and carried it up in the form of oxide of manganese into the supernatant slag. The process in its early days was not very satisfactory because insufficient manganese was used, the practice being to leave only about $\frac{1}{4}$ per cent. excess

of manganese in the finished steel. Afterwards it was found that 1 per cent. excess manganese was necessary to obtain an easily forgeable steel. In justice the method should be called the Bessemer-Mushet process. This method long ago reached its zenith and is now used mainly for making rails. It has been superseded by the Open-hearth method, called on the Continent the Martin process, in England the Siemens method or alternatively the Martin-Siemens or Siemens-Martin process. This method was made practicable by the invention of the regenerative heat system of the late Sir William Siemens, a British subject of German descent. In this process equal weights of pig-iron and scrap-steel are purified by the addition of solid oxygen in the form of red hematite ore. In acid-lined furnaces of this type seventy tons of steel are sometimes made at one operation. Mushet's deoxidizing addition of manganese must also be used in this process, leaving about $\frac{1}{2}$ per cent. of metallic manganese in the finished steel. Ingots upwards of 150 tons in weight are occasionally made in Sheffield armament works by this process.

THE WORLD'S OUTPUT OF STEEL

In the early eighties Great Britain was producing in round numbers about 8,000,000 tons of pig-iron and 2,000,000 tons of steel per annum. The quantities produced by America and Germany were relatively small. To-day in round numbers substantially accurate and readily remembered, Great Britain is producing about 7,000,000, Germany 14,000,000, and America 28,000,000 tons of steel per annum, made by the Huntsman, Bessemer and Siemens methods. Thus in output Great Britain is hopelessly outpaced. She is

living in fact on the unsurpassed and often unapproachable average quality of her steel; and shipments of high quality steels were, prior to the war, being sent to Germany at prices, for the finest quality of steel, reaching up to 2s. per lb. The vast output of the United States is accounted for by their great natural resources in iron ore and coal, by the energy of the Americans, and by the fact that they have to supply a population of 92,000,000 of people with steel for their huge and ever-increasing railways and industries. The case of Germany is more remarkable because her leap into the position of the second steel-producing country of the world is due, not to her own 'Kultur', but to an appropriation of the brains of British inventors: in fact, to the invention of the basic-steel process by Thomas and Gilchrist in England in the early eighties. This process made valuable for steel-making the hitherto useless phosphoric ores of Germany. In the *Revue Économique Internationale* for June 1911, Herr Fritz Thyssen showed that Germany produced in 1909 over 12,000,000 tons of steel, and of these, over 7,500,000 tons were Thomas and Gilchrist basic steel, and over 152,000 tons were Bessemer's acid steel. In this year Germany used over 25,500,000 tons of native basic ore, importing less than 8,500,000 tons of foreign ore.

The German system of production is to keep the works going as far as possible at full output, thus keeping down the dead charges and the re-starting charges to a minimum. When by these means, at ordinary market price a necessary profit has been made by legitimate sales, the surplus steel is dumped, frequently in Britain, at say £1 per ton under British cost price. The payment for the dumped steel is an addition to the fair profit. This procedure throws the British

steel-worker out of employment. In one well-known case a large British works had to close down for a year, throwing thousands of men out of work. On the other hand, certain British manufacturers using the dumped steel no doubt reaped a considerable advantage, but such gain is obtained at the price of depleting the ranks of British iron-smelters and steel-melters, and such depletion on a large scale would constitute a national danger, from a naval and military point of view. Considering the enormous debt due by Germany to British inventors, Britain owes very little to German initiative. Krupps, it is true, much improved the process for carburizing the faces of armour plates, but on the other hand they have had to adopt British improvements in armour-piercing shells. It is also true that in devising engines for blowing blast furnaces by the combustion of their own waste gases Germany has devised some admirable engines, but here again the idea of so using the gas came from the brain of a British furnace engineer, the late Mr. B. H. Thwaite, who died ill rewarded for his pains.

EDUCATION IN THE APPLICATION OF SCIENCE TO STEEL METALLURGY

This subject has already been touched upon (see Professor Wedding's communication to the *Cologne Gazette* in foot-note on pp. 9-10 of this pamphlet), but it may be well at the present crisis to state in a little greater detail facts which some German Universities, authors and pressmen would prefer to have kept in the background as to the comparative development during the last twenty-five years of German and British educational methods in teaching the applied science of steel. For purposes of comparison the steel departments at Charlot-

tenburg and Sheffield may be selected. The latter has been contemptuously described by a professor of pure science as 'a pig-boiling and ingot-slinging establishment'. It is true that pig has been boiled into steel in the main practical laboratory at Sheffield University, and that casts of such steel up to nearly two and a half tons in weight have been made : also that the ingots have been slung out of the casting-pit by means of a four-ton electric crane. Why not ? It is also true that coke and gas crucible melting furnaces, and hardening furnaces of commercial manufacturing sizes are worked. There are also commercial mechanical testing machines for making static and dynamic tests. There is also a cupola for making in the foundry five tons of castings per day. Again, why not ? To the examination of these products at every stage of manufacture, the pure sciences of mineralogy, chemistry, physics, and microscopy are applied to the fullest possible extent. Also it may be remarked that the University of Sheffield is unique in granting Metallurgical Degrees, namely those of B.Met., M.Met., and D.Met. The Bachelor's degree requires a candidate after matriculation, in addition to seven applied science subjects, to pass also in three pure science subjects, namely chemistry, geology and mineralogy, and either physics or mathematics. In the applied analytical chemistry of steel the German analysts are distinctly inferior to trained British chemists. Nevertheless so widespread is German scientific megalomania that about three years ago a valuable consignment of high-speed cutting-steel exported from Sheffield to Germany was rejected on the ground that its micrographic analysis was unsatisfactory. The German-trained metallographist also stated : ' No doubt you are unaware that this microscopical examination of steel is

a new method just evolved at Charlottenburg and probably it has not yet reached Sheffield.' An experienced metallographer from Sheffield University subsequently found the diagnosis of the young German steel doctor to be absolutely wrong, and the rejection of the steel was cancelled. At Charlottenburg there are no practical appliances whatever, and hence the science taught there is pure and abstract rather than applied and concrete. Which system is better for training officers to command the battalions of an industrial army? Take again, for instance, the very important subject already referred to, of metallography, i. e. the microscopical analysis of the structure of metals, which are crystallized artificial igneous rocks, built up of many rock-forming minerals. This science was founded by the late Dr. Henry Clifton Sorby, F.R.S., in Sheffield in 1863-5, and his superb pioneer sections are still examined in the micrographic laboratory of the University of Sheffield.

There are about twenty-nine constituents or sub-constituents of steel and iron. Of these twenty-six have been discovered in Sheffield, the steelopolis of Great Britain; three in Middlesbrough, its ironopolis; and the record of Charlottenburg in this branch of research is an absolute blank. A comparison of the quantity and quality of the researches on iron and steel of a pure science order turned out from what is now the University of Sheffield, with those evolved from Charlottenburg during the last twenty years, would be cruel because farcical. One example will suffice. The first-fruits of metallurgical research from Charlottenburg, which were announced even in British engineering journals with much beating of tom-toms, was a paper describing an investigation of the physical influence of nickel on iron. The Charlottenburg conclusions were that, when the

quantity of nickel alloyed with the iron reached 6 per cent., the tensile strength fell to six tons per square inch, whilst the ductility practically disappeared. Contemporaneously the Sheffield College completed a research showing that iron containing about 7 per cent. of nickel had a tenacity of about thirty-nine tons per square inch, with a ductility of about 55 per cent., and that iron with 28 per cent. nickel had much the same mechanical properties: but when about 13 per cent. of nickel was present it formed with the iron a definite alloy possessing the enormous tenacity of nearly ninety tons per square inch associated with a ductility of no less than 45 per cent. The Charlottenburg results were, no doubt, correctly observed, but owing to a preliminary lack of practical metallurgical knowledge the experimentalists made alloys hopelessly charged with oxygen, in fact the title of their research should have been not 'The influence of Nickel on Iron', but rather 'The influence of unknown quantities of dissolved Oxygen on Alloys of Iron and Nickel'.

Another example of Teutonic mendacity is a statement made by a German writer which actually caused some alarm in this country, that owing to the superior skill of the German gun engineer and the better quality of German steel, the comparatively small guns of the German Navy excelled in power the larger British guns.

In connexion with the German realization of 'Der Tag' in the North Sea on January 24, 1915, the artillery experts of Sheffield (which city is the greatest naval armoury the world has ever seen) would no doubt like to ask the survivors of the *Blücher*, the *Derfflinger*¹,

¹ This vessel, the most powerful German battle-cruiser, carried eight 12·2-inch guns.

the *Seydlitz*, and the *Moltke*¹, to give their candid opinion on the power of the 13·5-inch guns and of the lyddite shells from those British battle-cruisers which sternly avenged the women and children so foully murdered on the East Coast.

¹ These ships are of the *Goeben* type, and carry, or carried, a main armament of ten 11-inch guns.

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THE WAR AND THE
COTTON TRADE

BY

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THE WAR AND THE COTTON TRADE

ECONOMIC considerations are not of primary importance in the present crisis, but they are of great importance nevertheless. The Allies are called upon to strengthen any weak spots in their powers of endurance and mobilize their resources to the full. Endurance and resources are compounded largely of economic factors. It has, therefore, been essential to examine our industries with the object of discovering any dislocations in the process of wealth production that required State aid, and any problems of unemployment that there might be to solve. The Government has kept itself informed about the economic position—and it has done much to render it as remarkably satisfactory as it is. But it is expedient that the public also should realize how we stand, for a nation is most steadfast when its constituent members have made up their minds in the light of all-round knowledge. The modest purpose of this pamphlet is to afford the requisite information, as tersely and exactly as possible, with regard to one of our chief industries, namely, the cotton industry.¹

Properly to understand the situation in the cotton industry it will be desirable to consider it in relation to industry as a whole. At the outbreak of war, many people were exceedingly uneasy about the future, with reference to employment generally. They imagined

that crowds of the able-bodied would soon be without the means of livelihood. They anticipated that little things and big things in the business world would give way beyond immediate repair, when its intricate organization felt the shock of war, and that much of our industrialism would be crippled for the time being.

Events have belied these fears and proved that a highly complex economic system is far more adaptable than was generally supposed. This is not really surprising. It is primitive society, not civilized society, that should respond least readily to a change in environment. Not a little of the complexity of modern business operates in facilitating such rearrangements in structure and alterations in productive functioning as may be requisite. It is only because of the development of a capacity in business to modify itself rapidly as need arises, that the amazingly delicate equipoise maintained in the international division of labour has been rendered at all possible. At any rate, experience has now demonstrated that, with assistance from the Government here and there, weakened springs of action in the economic system can be rapidly strengthened, and fractured parts mended or replaced. The foreign exchanges broke down (that is to say, debts to England could only be paid at a ruinous charge); to-day most of them are working almost normally. The bottoms were knocked out of the Stock Exchange and the money market; to-day, in each of these markets, dealers are finding a sure footing on a new basis of value. Credit was strained, but it did not snap, and bankruptcies have been uncommon. The cotton market, with other similar institutions, had to seek restoration behind the closed doors of the moratorium; but to-day on the floor at Liverpool and New York

all that is needful is being done again to pass cotton from the growers to the users. The shock of the war has emphatically not reduced our business institutions to wreckage.

But there was another reason why apprehension was felt about employment. It was argued that a great slice would be cut away from the continental market, that many other foreign markets would suffer in purchasing-power, through the loss of their trade with parts of the European continent, that home buyers would be exceptionally economical in view of the uncertainty that war cast over the future; and that, consequently, there would not be enough work to keep everybody occupied. This argument impressed, because of the elements of undoubted truth contained in it. But it was one-sided. It overlooked, or under-emphasized, that markets lost to sellers were equally lost to buyers: that, for instance, the replacement of German exports by the like or similar goods would be sought. It also overlooked, or under-emphasized, that an immense new demand, representing war needs, would arise—the need for men to fight and the need for men and women to make clothing and accoutrements and munitions of war for our own and our Allies' forces, or to make what would have to be exported to pay for the things obtained from neutrals. Finally, it assumed that people would not settle down to war conditions so rapidly as they did, that earnings would not be so satisfactory as they are, and that excessive caution at home in buying would not, therefore, be discouraged as it has been. /

When a broad view is taken, it is apparent that a shrinkage of some of the old demands was inevitable. But to the old demands was added an enormous new

demand. And it might have been foreseen that the latter would far transcend the volume of demand lost by the shrinkage of the old demand. As a matter of fact it is found that it is so. Two problems confront us, and neither is a problem of general unemployment. The one, largely insoluble, is the problem of a shortage of labour, and the other, already half solved, is a problem of readjustment.

Shortage of labour is beginning to be felt unmistakably. Certain exports have fallen off, not because markets have dropped away, but because there are only a few goods to spare to send them. Prices are rising, partly in consequence of high freights (largely due to a dearth of ships) and war insurance, or the locking-up of certain supplies (for instance, wheat in Russia), or their inadequacy for the times. But these are not the only causes. Others are operating, even where those enumerated above are unimportant, negligible, or non-existent, and, of these others, one of some weight is the paucity of labour for making and moving goods, in view of the needs of the armies and navies, and in view of the numbers of men who have flocked to the colours. Taking the country as a whole, the truth is that the effect of reduced demands has not been felt since the first few weeks of war because the ordinary demand that remains is still too great to be satisfied by the limited amount of labour and capital available for the purpose of satisfying it. In the relations between producers and everyday buyers, the trouble is not mainly that the former cannot break through the economy (enforced or voluntary) of the latter, to dispose of what they have made: the trouble is mainly that the buyers cannot get as much as they still want, and are forcing prices up by their competition

with one another. The general situation brought about by the war resembles what would happen in a game of musical chairs if you kept adding more chairs than you took away. In that event all the chairs could not be occupied. So now all demands cannot be met.

On the whole and in the rough, this is an accurate envisagement of the present position, though it may involve for some readers an inversion of ideas. But to these generalizations there are notable exceptions. There are 'luxury' trades that can only be utilized to a small extent, if at all, for war needs. The experience of these must be mainly of depression. And there are merchants through whose hands fewer goods are passing, and who are therefore giving less employment. Also, one would be prepared to find an important exception in a great localized world-industry like the Lancashire cotton industry. For a home industry that satisfied a very large portion of the world's demand for the class of things it produced might easily suffer, through but a slight percentage withdrawal of ordinary demand, a much larger absolute loss than it could hope to recoup by responding to direct and indirect war requirements. It has, therefore, been anxiously inquired on all hands how our cotton industry is faring.¹

The cotton industry of the British Isles is the most stupendous in the whole world. Of spindles it possesses nearly 40 per cent. of the world's supply, and nearly twice as many as the next biggest cotton-spinning country, namely, the United States; while its power-looms number nearly 800,000 in all, as against some

¹ A full statistical account, with a discussion of causes and the possibilities of the future, by the author of this pamphlet and Mr. David Kemp, will be found in the March (1915) *Journal of the Royal Statistical Society*.

700,000 possessed by the United States, the next largest manufacturer of cotton fabrics by power. Its exports are naturally enormous. In 1913 they reached the prodigious sum of £127,000,000, and accounted for 20 per cent. of the exports of the United Kingdom.

In considering the happenings in Lancashire after the European conflict began, it must be noted that the cotton trade had just slipped into one of those periodic stagnations to which it is peculiarly liable (largely, I should imagine, because of its excessive dependence on demands in the East, where margins for buying comforts are narrow, and therefore given to violent fluctuations). The collapse of markets was already so serious in the early summer that extensive short-time was decided upon by the English federation of cotton-spinners at the beginning of July. And, just before, trade had reached its zenith. This must be understood lest one should be led into exaggerating the effect of the war by comparing trade some months before the war with trade after war began. Trade had been extraordinarily good ; but it was subsiding before the summer ; and, when the outbreak of hostilities delivered a knockdown blow, the industry was already half recumbent.

The last five months of the year 1914 saw the average monthly export of piece goods, measured in quantities (not in values), 43 per cent. beneath the monthly average for the corresponding period in the previous year. In contrast with this, in the four worst months of the 1908-9 decline, exports of the same goods were about 20 per cent. below those of the corresponding months of the previous year. Consequently, one might be tempted to say that the war was accountable for little more than half the fall up to the end of last year. But, inasmuch as a somewhat less favourable conclusion is

reached when we measure the degrees of failure in 1914 and 1908-9 by taking as the standard in each case the general level of trade just before, we shall be safer in attributing some three-fifths of the shrinkage of exports to the war—particularly in view of the duration of the present collapse. It may be added that, reckoned from the level of exports from twelve to sixteen months previously, the contraction in the last five months of 1914 still comes to about 43 per cent.

In January trade took a turn for the better. Exports of piece-goods for January were more than 25 per cent. better in quantity than those for December. Recovery was due in part to the fulfilment of large orders for our allies. But it was chiefly due to the improvement of demand in overseas markets, where, in addition, a certain amount of replacement of German goods by English substitutes must already have taken place. Of an increase in the exports of piece-goods of 76·5 million yards, France took only 4·5 million yards, which meant, however, an advance of 110 per cent. on December, and of more than 500 per cent. on what had been normal. Increase was biggest in bulk in the supply of the Indian, China, and Australian markets. India took 34·5 million yards, or 29 per cent., more in January than in December; China 12·8 million yards, or 59 per cent., more; British South and West Africa 6·7 million yards, or 56 per cent. more; and Australia 3·2 million yards, or 27 per cent., more. It is also notable that the Egyptian market, which had been gravely affected, absorbed 3·7 million yards of the extra shipments, thereby raising her buying over December by 45 per cent.; and that Central and South American markets, which had long been in an unsatisfactory state, began to show a certain liveliness. The passing of depression would seem to have begun.

The above account has been confined to quantities, for the sufficient reason that aggregate values have been reduced considerably by the fall in the cost of cotton. The value of a portion of the exports kept up because the prices of a portion had been fixed before the price of cotton dropped ; but the cheapening of cotton has told in the aggregate value of the exports increasingly month by month.

Exports of piece-goods afford a fair indication of the state of exports of cotton goods as a whole, inasmuch as the former account for some 80 per cent. of the latter in terms of value. Moreover, ordinarily, the former may be taken as a rough index of production, since it has been computed that nearly 90 per cent. in quantity, and over 80 per cent. in value, of the piece-goods produced are shipped to foreign markets. It may be added here, however, that the percentage collapse of exports in the period from August to December was materially more in yarn than in piece-goods. In the former it passed 50 per cent., when measured against the level of the previous twelve months' trade. But this was not so serious a matter, as no more than about 15 per cent. of our yarn output is sent abroad. And in January half the 50 per cent. averaged in the last five months of 1914 was wiped off. Of the total increase of 4 million lb. between December and January, France took a little less and India a little more than 1·2 million lb.

In the table opposite, the percentage contractions in the export of piece-goods in yards, and of yarn in lb., are shown, the contractions being reckoned on the average monthly exports between August 1913 and July 1914. An average is also given, in the calculation of which six times as much weight has been attached

to the piece-goods as to the yarn, because in value the former are usually about six times greater than the latter. Finally, in general accordance with the conclusions reached above as regards the effects of trade depression, estimates to the nearest 5 per cent. are offered of the degree of shrinkage due to the war. In these estimates allowance is made for a gradual coming and going of trade depression. The war, of course, as will be noted later, wrought some of its effects through extending and deepening depression, but these effects we include in war effects :

PERCENTAGE CONTRACTION OF EXPORTS IN QUANTITIES.

	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Jan.</i>
Yarn	57	47	57	48	46	25
Piece-Goods	46	35	36	47	52	40
Weighted Average . .	48	37	39	47	51	38
Contraction probably due to the war	35	20	20	30	35	25

The sudden check in August was due to anything but panic. Panic means an unthinking stampede. But British merchants, as a body, kept cool and collected. They refused to be hurried in their decisions, and stopped deliveries for the time being, to wait for news, for instance, about the safety of trade routes. It would have been folly to have shipped goods to be sent to the bottom, if waiting a week or two would have assured their safety. Soon deliveries were flowing out freely, but the dangers of the seas were not finally reduced to an insignificant deterrent till the sinking of the *Emden*, the removal of other hostile cruisers, the fall of Tsing-Tau, and the victory of the Falkland Islands. Recovery would then have been marked if new business had come forward normally to supplement that already in progress. Delay in the materializing

of new business was unavoidable, however, seeing that the machinery of business was still under repair (including the foreign exchanges, the cotton market, and the credit of some shippers whose remittances failed to arrive) and that the ordinary depression was accentuated by the war. Depression is marked by the curtailment of forward buying, because of uncertainties about future demand, and to ordinary uncertainties were added those connected with war. Moreover, in the case of the South America States, whose markets gave way some time before the war, the withholding of the financial assistance that they might have expected otherwise delayed revival.

It is pretty generally believed in Lancashire by now that the cotton trade is not going to suffer much at the worst. The excessive economy (enforced or voluntary) that was at first practised at home has largely disappeared. Home traders report that business is no longer bad. Certain foreign markets are cut off, of course, to the extent, say, of £17,000,000 on the values of 1912, but against these there are gaps to fill in other markets, including our own, which can no longer get supplies from the old sources. This trade must have amounted to £30,000,000 in 1912, and in view of the relative magnitude of the English industry, no small share of it should fall directly or indirectly to Lancashire. It would seem that on balance much loss is unlikely; and no allowance has been made for the fact that any unusually large export on the part of neutrals to the markets closed to us would tend to leave spaces in their other markets, including their home market, to add to the compensatory demand that affects us.

Much has been talked of capturing German trade,

and it has been pointed out that it would not pay manufacturers to install machinery to make for a limited time a class of goods that they do not now produce, even if they could get the machinery constructed while metal-workers were so busy in connexion with armaments. But imitation, or close imitation, is not really necessary. Substitutes for German goods, even if they are not exactly the same, will have to be accepted some time. And, as to the temporary character of the trade, it has to be remembered that buying habits stick, and also that, for other reasons, when hostilities are over, commerce will not spring back to its position before they began. Resentment against the Germans for bringing on the war, for their method of conducting it, and particularly for their treatment of Belgium, will last a long time, and not merely amongst the Allies—unless, indeed, it should be shown in an unmistakable and effective way that the trading and industrial classes in Germany repudiate the crimes committed in their name. Hence the emergency arrangements substituted for the old distribution of the world's commerce will in some degree continue for years. In this connexion it may be remarked that the union of the Allies will naturally have an economic counterpart in closer business relations. It may also be remarked that the above considerations should fortify the effort that is being made to render the British cotton industry independent of German dyes. A dearth of certain colours is already being felt. It is much to be hoped that the brightness of the outlook will not be clouded by a failure to make good this one weak spot. Failure would not mean failure of the cotton trade, but success would render fair prospects materially better.

One circumstance of which account must be taken,

that will act detrimentally on the cotton trade, is the reduced purchasing power that some of its markets will suffer in consequence of the chaos in Europe. The realizable value this year of the cotton crop in Egypt has been reduced, for instance, both by a limitation of the quantity needed and by a fall in price of more than 25 per cent. Matters would have been worse, however, had any large proportion of the crop been designed for Germany or Austria. As it is, the United Kingdom and the United States together take four times as much as Germany and Austria together. India will suffer relatively more on her cotton, because of the amount—as much as quarter of the crop—that used to go to the European continent. On jute, again, India will experience a loss. These are but examples. On the other hand, with regard to certain of their exports, some countries will gain—for instance, India, in all probability, on hides and tanning. When a comprehensive survey is made, it seems evident that an appreciable, though not a severe, check on purchasing power in important markets must be allowed for. But, at the same time, it seems doubtful whether it will have any very large effect on our exports of cotton goods, in view of the fact that they are not among the first things to be dispensed with, and that their price is now low, in consequence of the fall in the value of cotton, which, on a conservative estimate, may be put at, say, 30 per cent. on an average. This advantage is by no means swallowed up entirely in higher costs of transport and insurance. On no class of goods consigned in bulk to the East can the net fall, measured from the values of 1913, be appreciably less than 10 per cent., and on some classes of goods it is substantially more.

In addition to the incidents enumerated, the closure of the cotton markets at Liverpool and in the United States for more than three months, was bound to have a damping effect on enterprise. It was still possible, of course, to get any amount of cotton, but the price of cotton was kept up artificially, and against this there was no relief till new cotton came into sight. Moreover, Lancashire was gravely embarrassed by the withdrawal of the facilities normally afforded by dealings in 'futures', which are sales of cotton at present prices for future delivery, that may be many months ahead. These contracts, of which there is more than one type, are used directly or indirectly by spinners to shelve risks connected with future variations in the price of cotton, by brokers to cover their contracts with spinners, and by importers of cotton to guard against any fall in its price before arrival. Dispensing with futures involved going back thirty years or more in the methods of doing business. It is notable, however—and it bears eloquent testimony to the adaptability of the cotton industry—that, under the stimulus of low-priced cotton, some Lancashire enterprise went back the thirty years in method and succeeded in making hay while the sun shone. The cotton market was fully opened again on November 16, and is now functioning normally. Closure had been necessary to work off, without bankruptcies, heavy payments consequent upon the fall in cotton values, particularly in view of delayed remittances on account of foreign transactions. The liquidation of debts took place with a surprising absence of disaster.¹

¹ A discussion, by the author and Mr. David Kemp, of the problem of the cotton market created by the war, and of its solution, will be found in the March (1915) *Economic Journal*.

Abnormally low importations of cotton in the first six months of war caused some anxiety. Imports in millions of lbs., and percentage decreases (marked —) or increases (marked +) on the imports for the corresponding months of the previous year, were as follows :

	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Jan.</i>
Imports 1914-15 . . .	61	40	66	131	268	301
Percentage differences on						
1913-14	+52	-55	-75	-63	-21	-2

There was no occasion for alarm, however, particularly as the stock of cotton in Liverpool at the beginning of August was unusually large. The low figures meant in the main that new cotton (which does not arrive in bulk till October) was only procured as it was actually needed, instead of being imported by means of 'futures' against future obligations. Now it is coming forward normally. But in America, Egypt, and India, financial arrangements had to be made to move crops in the exceptional circumstances, and also to hold portions of them with the object of saving many cotton growers from ruin and safeguarding future supplies.

To complete our examination of trade, some attention must be given to imports of cotton goods, because in their failure some compensation is to be found for reduced exports, as has already been noted. In values imports and exports have been as follows in £100,000's :

	<i>Jan. to June average</i>	<i>July</i>	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Jan.</i>
Exports .	105	113	58	62	61	55	51	64
Imports .	10.6	11.8	2.9	2.6	3.9	3.5	5.5	5.8
Balance of								
Exports	94.4	101.2	55.1	59.4	57.1	51.5	45.5	58.2

The heavy fall in imports, which is comprehensible in view of the large proportion ordinarily received from

the continent, has to some extent mitigated the fall in exports which has been much less relatively. Doubtless many of the things that used to be bought abroad are being dispensed with, but to some extent English goods, which may only bear a faint resemblance to them, are taking their place. The warning must be repeated that values mislead, as an indication of the extent of depression, owing to the fall in the price of cotton.

England carries on such an enormous foreign trade that we in England have got into the habit of treating foreign trade as a barometer of production and even of general prosperity. Ordinarily, export and import statistics do not lead us far astray when used as an index in this way, but at the present time they happen to be most deceptive seeing that work done for the British Government, even if sent abroad, passes unrecorded. It is needful, therefore, to carry our investigations behind trade to the state of production. To do this is desirable also because production must evidently rally before exports can take a turn for the better, and it is in production, consequently, that signs of recuperation are first discoverable.

Unfortunately no accurate records of production that embrace the whole industry and appear at short intervals exist. Figures have been published by the weavers' amalgamation showing the numbers of looms stopped and looms on short time, but as the average extent of short time is unknown, these figures serve only very roughly as an index of the output from weaving sheds. The Secretary of the Oldham Employers' Association has also been issuing the spindle hours worked in Oldham, and there is no doubt that his returns afford a wonderfully accurate measurement of production in spinning at Oldham. But they cover only Oldham and

its vicinity, and it happens that war orders have helped in particular the kind of work that is typical of Oldham. Again there are the returns made by a large number of employers to the Board of Trade, and published in the *Labour Gazette*, of monthly and yearly variations in wages paid, which, in the absence of changes in rates of wages, should correspond with variations in output. It would try the patience of the reader, and fill up too much of our space, to scrutinize these several pieces of evidence in detail. It must suffice to give percentage contractions of production as compared with June and with a year ago, based on averages of the employers' returns published in the *Labour Gazette*, when in the calculation of the averages the returns from different districts are given a weight proportional to the importance of the districts to which they relate.

The figures are as follows :—

	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Jan.</i>
Percentage contraction on June 1914	64	43	41	33	28	23
Percentage contraction on 12 months previously .	64	42	38	29	23	13
Average	64	42	39	31	25	18

We shall regard the averages in the last line as affording a rough approximation to the truth.

In the next table these averages are presented side by side with percentage limitations of trade (see p. 11) and very rough estimates, to the nearest 2·5 per cent., of the diminution in output that might have been expected had the period not been one of a normal trade depression. These estimates are obtained by allowing for the shrinkage that depression would in any event have brought about in trade and particularly in exports (see pp. 8-12). To avoid complications, it

has been necessary to ignore the fact that reduced production in any given month may show more in the exports of the next month than in the exports of the same month.

	<i>Aug.</i>	<i>Sept.</i>	<i>Oct.</i>	<i>Nov.</i>	<i>Dec.</i>	<i>Jan.</i>
Percentage contraction of trade	48	37	39	47	51	38
Percentage contraction of production	64	42	39	31	25	18
Probable contraction of production due exclusively to the war . .	55	30	25	17·5	12·5	7·5

Production in August receded more than exports. But by November the position was reversed. War orders for the British Government limited the curtailment of production, and also war orders for our Allies, which could not at once tell on exports. In addition, some production took place in anticipation of demand, as has already been mentioned, and naturally the attenuated imports offered fresh opportunities to English manufacturers.

At present, production is no more than 20 per cent. down on normal at most, and, had this not been an ordinary period of bad trade, the decline would have been materially less. It goes without saying that the state of affairs varies from place to place. In some localities production is practically normal; in others it is still very limited, but time is bringing about a more even distribution of work. Adjustment problems are always slow to solve.

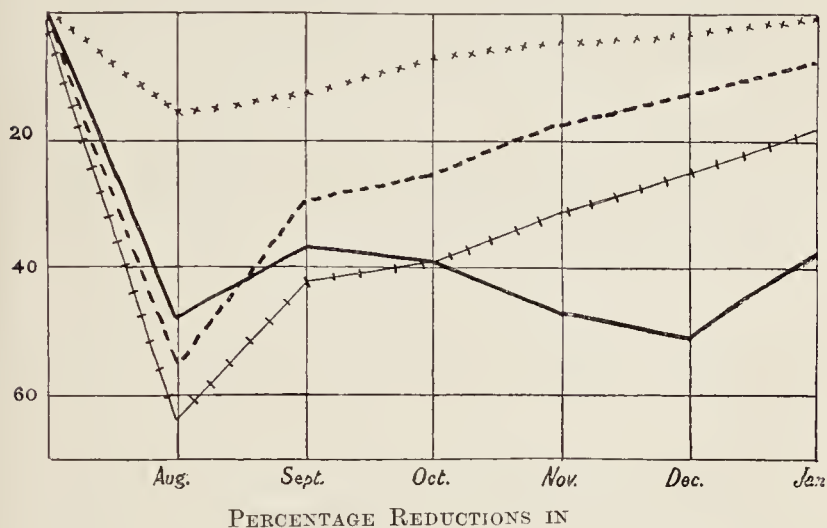
Turning to employment, we find conditions far better than one might have supposed. Very little of the loss of output has caused complete unemployment. The rest has been carried by reeruiting and short time. The Lancashire cotton industry has long been famous for its use of the method of short time to limit output, and

on this occasion a special effort has been made to find some work for as many people as possible. Inquiries made by the Board of Trade into conditions on a particular day in October and another in December, as compared with conditions on a particular day in July, revealed 10·1 per cent. of unemployment in October and 3·7 in December among males, and 14·2 in October and 9·3 in December among females. The same inquiries showed that 40 per cent. of the men, and a somewhat larger percentage of women, were working short time. By December the percentages had dropped to 30 and 34 respectively. In many cases the amount of time lost by working short time is not considerable. As to recruiting, according to the inquiries mentioned, by October, 7 per cent. of the men, and by December 9·6 per cent., were known to have joined the forces, and doubtless the percentages of recruits were appreciably higher.

Trade union returns present an even more cheerful picture as regards unemployment. The excesses of the percentages of unemployment over 2·2 (the figure for June) were as follows in successive months from August to January—15·5, 12·3, 7·0, 4·1, 3 and ·8. The discrepancies between these figures and the Board of Trade findings may be partly due to the fact that only unemployment entitling to benefit are included in the trade union returns, whereas all unemployment on a particular date in October and a particular date in December comes into the Board of Trade statistics. Moreover, it is possible that trade unionists are least affected.

The wage-earners connected with the cotton trade who are hurt most by the war are those whose employment depends on merchants' work in Manchester—for instance, clerks, warehousemen, makers-up, and so

forth; for an appreciable part of the work that has brightened the industrial outlook does not pass through merchants' hands, or involves comparatively little clerical work. The outcome of this is to be seen in part in Manchester's fine response to the call for recruits. The opportunity of serving the country in the fighting line has been most widely seized where men could best



Trade
 Employment (trade union figures)
 Production
 Production, apart from the probable effects of
 the ordinary trade depression

From August 1914 to January 1915.

be spared; and Manchester employers have not been backward in making the liberal arrangements that the situation calls for to facilitate recruiting.

Some of the broad conclusions reached as a result of this inquiry are displayed in the diagram above. Unemployment is trifling; but short time is more extensive. This latter, however, is getting steadily

less. The present position of production is by no means bad, thanks to enterprise, common sense, public spirit, war orders, and the failure of imports. This being so, much unemployment, after the drain of recruiting on the labour market, was not to be looked for. Exports are still down, but January brought a comforting turn of the tide. An analysis of trade reveals that depression is clearing away from our leading markets. There is every reason to suppose that improvement will continue until a fair level of trade is reached, for, though many markets have gone, at least till the war is over, compensation should be met with in others owing to the removal of important sources of supply. It is unlikely that the impoverishment of certain markets, in consequence of the war, will be so considerable as to cause a collapse in their takings of cotton goods. By the time that war orders are falling off, the ordinary trade should have so rallied that no great loss will be felt, as far as one can see in the present imperfect light.

And what will happen when the war is over? There is reason to hope little or nothing that will be detrimental to the cotton industry. There will be labour to re-absorb, but some demands will be liberated and others stimulated. With regard to industry as a whole, it is apprehended by some people that the resumption of the normal will only be effected after a terrible depression and much unemployment. Whether this apprehension is well founded, is highly questionable. Of course we shall all be the poorer, but long-continued unemployment need not be assumed. There will be a problem of readjustment, but recent experience has taught us that its solution may be rapid. And failure should not lie on the side of demand. Enormous works

of restoration will have to be effected, and one way and another these will draw on a number of industries. Moreover, a mass of work is now being held up because the labour to undertake it is lacking, or else the enterprise to set it on foot while the future is uncertain. Consumers' demands are not unaffected, and producers' demands, relating to the renewal, supplementing, and repair of plant and premises, are largely held in leash at present, of necessity or on grounds of prudence. Moreover, peace will stimulate enterprise. The sanguine outlook is likely to prevail. The dejected mind that takes a gloomy impression of facts, and so induces industrial stagnation, may have been common at the outbreak of war, but it is likely to be rare among the Allies at its close.

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THE WAR AND EMPLOYMENT¹

IMMEDIATELY before the declaration of war employment was good in the industries of the United Kingdom taken as a whole. The depression of 1908-9 had given place to good trade in 1911-12, and to such industrial prosperity in 1913 that till October of that year unemployment had been less than in any years for which comparable records exist. Some slight signs of reaction appeared in the winter 1913-14, but trade recovered in the spring and was in April only inferior to that of the previous year. During June and July, however, the adverse symptoms spread: the production of pig iron, the raw material of all the iron and steel trades, had fallen off considerably; coal mines were not so busy; shipbuilding showed some slackness of demand; the woollen industry was definitely on the down grade, though the worsted manufacturers were still busy meeting the great American demand which had arisen from their lowered tariff. The most serious trouble was in Lancashire: employment in the cotton mills was still good in July, but it was quite definitely foreseen that the future demand would be less and arrangements had been made for working short time for three months. There were no labour disputes of any magnitude unsettled, except the long-drawn-out trouble in the London building trade, which was reported in the *Labour Gazette* to be practically at an end. The statistics of foreign trade were by no

¹ This pamphlet contains the substance of a lecture delivered at the London School of Economics, February 15, 1915.

means unsatisfactory, but below their maximum. In brief, there was cause for anxiety, but little to show whether the coming autumn would begin a period of depression or only mark a temporary reaction after two years of great prosperity.

The declaration of war fortunately came in a week when many of the commercial and of the industrial population were taking or about to take holiday. A complete stoppage of production for a fortnight would have been a serious injury only to unskilled labour. By the end of a fortnight the paralysis caused by the shock was over, and it was possible to take stock of the position. New orders for export were, in the state of foreign credit, practically non-existent, and it was for the moment doubtful whether existing orders could be paid for or delivered. Many contracts in the home trade were cancelled. Industries producing luxuries or commodities whose purchase could be postponed were nearly stopped. Nevertheless, there is indisputable evidence for the statement that the total number of men completely unemployed at the end of August was less than in a month of trade depression of not unusual severity ; for women a similar statement would have to be qualified, because a very large proportion of those still in employment were working short time. From September to the present date employment has continually improved, so that in February there is an unsatisfied demand in several occupations, while the unemployment of women is on a quite moderate scale, and, though short time is still prevalent in some important industries, in others there is even a balance of overtime.

Before we trace the change of employment in detail or in the aggregate, it is well to consider the nature

and adequacy of the published information. The index most generally quoted is based on the number of members of certain trade unions, whose aggregate membership is nearly a million, who are reported as unemployed at the end of each month; this number expressed as a percentage of the membership is published monthly in the *Labour Gazette* of the Board of Trade, and it is shown for 1913 and 1914 in column 1 of the table on p. 7. The trade unions concerned are in the main composed of skilled workmen; engineering accounts for a quarter of all, women are hardly represented, of building operatives only carpenters are included in any large numbers, and the loss of work by textile operatives and coal miners is not fully accounted for. This index, valuable as it is, is by no means necessarily representative of the movement of the whole volume of employment.

Since the Insurance Act came into force, very complete statistics are available as to the number of men unemployed in those industries where insurance against unemployment is compulsory—that is, building, works of construction, engineering, shipbuilding, and subordinate trades. The number out of work, expressed as a percentage of all so insured, gives very accurate information over an important, though limited, area of industry, containing about 2,500,000 men. These percentages, given in column 2, show fluctuations similar to those in column 1, though the movement is not so violent. In neither case are men out of work owing to labour disputes, or men who have joined the Army or Navy, counted as unemployed.

Information of a different and much less definite character is obtained from other records of the Labour Exchanges. The most significant statement is that which

gives the numbers of persons registered as desiring work (or a change of work) and on the 'live register' at selected dates. These numbers cannot be expressed as percentages, since there is no definition or knowledge of the population to which they relate, that is the persons who would apply to the Labour Exchanges when out of work. Columns 3 and 4 show the numbers of adult men and women, employed in industries other than those dealt with in column 2, who were on the live register in various months. For men the movement in uninsured trades is remarkably like that in insured trades ; if the denominator is taken as 6,000,000, the percentages are nearly identical. For women, who are hardly represented at all in the earlier columns, the movement is quite different, and in their case the impression obtained is somewhat misleading, because a larger proportion than formerly have been induced to register since the war, owing to pressure from the administrators of the relief funds. Since domestic servants have been affected rather differently from those in industry and have also taken much more freely to registration, column 5 is given to show the effect on women in industry.

The figures so far relate almost entirely to persons wholly unemployed. The *Labour Gazette* also gives information as to the actual numbers employed month by month by a large number of firms in the textile trades and by smaller numbers in boot-making, food preparation, and some other industries. These trades are imperfectly represented in column 1, and hence this record is of special importance. In column 6 the results are shown ; thus for every thousand persons employed in 1913, there were 991 employed by the same firms in the first half of 1914, 988 in July, 844 at the end of August, and so on. The industries concerned

MEASUREMENTS OF UNEMPLOYMENT.					MEASUREMENTS OF EMPLOYMENT.					
Date.	Trade Union Percent-age.	Insured Trades Percent-age.	Uninsured ¹ Trades.			Relative numbers and earnings in certain industries.			Coal Mines.	
			Actual numbers on 'live register'.			Including cotton.	Excluding cotton.	Av. No. of days worked per week.		
			Men.	Women.	Women, excluding servants.					No.
Average 1913 .	2.1	3.6	3.	4.	5.	6.	7.	8.	9.	10.
Average, Jan. to June 1914 .	2.3	3.9	227 ⁰⁰	157 ⁰⁰	82 ⁰⁰	1000	1000	—	—	5.58
July 1914 .	2.8	3.6	236	177	93	991	992	991	992	5.50
			206	168	88	988	980	988	988	5.06
August 1914 .	7.1	6.2	422	282	158	844	695	947	822	4.55
September 1914 .	5.9	5.4	329	357	208	894	774	939	846	5.01
October 1914 .	4.4	4.2	257	348	197	905	825	942	911	5.03
November 1914 .	2.9	3.7	213	341	201	927	871	949	936	5.09
December 1914 .	2.5	3.3	188	291	179	933	902	949	954	5.22
January 1915 .	1.9	2.6	182	302	188	927	903	940	938	5.48
Feb. 12, 1915 .	—	2.25	165	311	188	—	—	—	—	—

The numbers in columns 1 and 2 refer to the end of the month, in 3, 4, and 5 to the middle, in 6, 7, 8, and 9 to the end, and in 10 to the latter half.

¹ i.e. not insured for unemployment, though insured for illness.

employ a large proportion of women. The volume of employment depends, however, not only on the number of persons at work, but on the length of time they work. In the textile and mining industries and in some others it is the custom to spread work when it is scarce among nearly all the employees, so that there is little complete unemployment but much short time. We are fortunately able to make this more complete measure in the industries dealt with in column 6, for we have also records of total wages paid, and rates of wages hardly changed in these industries in 1913 or 1914. Column 7 shows that, for every £1,000 paid in wages per week in 1913, £980 was paid weekly in July 1914, and only £695 in the last week in August. The facts shown in columns 6 and 7 are very much affected by the cotton industry, whose depression was only in part due to the war. If we take the same records, and, having eliminated cotton, proceed in the same way, we find (as in columns 8 and 9) that the relative losses of employment and of wages are much smaller.

The *Labour Gazette* contains further information as to some other industries, of which coal-mining is the most important; here the average number of days worked, each pit being treated as a unit, forms a useful index (column 10).

Besides these Reports, which are available in the ordinary course, the Board of Trade and the Local Government Board have co-operated in the collection of special information as to the amount and nature of distress and unemployment arising out of the war, primarily for the use of the administrators of the Prince of Wales's Fund. Two detailed Reports¹ have been published by the Board of Trade, and these form the

¹ Cd. 7703, Cd. 7755, prices 6d. and 1½d., Wyman & Sons.

basis of many of the statements in the following pages. The method employed was very similar to that used for columns 6-9 above; but the inquiry was very much wider, extending (with certain exceptions) to all districts, all industries, all firms who employed more than 100 persons, and a considerable sample of smaller firms. Since (as is general in such cases) the furnishing of the information was not compulsory, only about two-thirds of the *questionnaires* issued were filled in and returned, but these were quite sufficiently numerous to give an adequate account. So far as private industry is concerned, there were very few serious omissions; but the transport trades (railways, cartage, tramways, docks) are not included in the main tables, no account is given of persons employed directly by the Government, and commerce and retailing are dealt with only in London. Questions were asked of each employer as to the number of persons (distinguishing male and female) employed in July, the numbers in September, in October, and in December, how many were on short time and how many on overtime, and how many were known to have joined His Majesty's forces. The general summary for industry is given on p. 10. In the occupations included there are about 7,000,000 males and 2,250,000 females. The number of men known by the employers to have joined the forces (about 900,000 in this group) includes both reservists called up and new recruits; but it is incomplete, because men who lost their work in the earlier months may have enlisted unknown to their last employers. The information as to employment in and enlisting from other industries is less definite; but it is certain that they have not only contributed their quota to the forces, but have also suffered less from want of work, since they consist mainly of workers in agriculture, on

railways, and in docks, of which the first and second had from the beginning of the war no unusual surplus of labour, and the latter were immediately busy with military work during the short time that foreign trade was stagnant.

In addition to this main inquiry an even more detailed investigation was made for London as early as August 21, which is specially valuable because it included commercial firms and wholesale and retail dealers as well as industry, and it was made during the period of the first moratorium and before there had been time for readjustment. The London figures are given on p. 11.

UNITED KINGDOM.

Industrial occupations, not including transport or direct Government work.

Per 1,000 Males or 1,000 Females employed in July 1914.¹

	<i>Employed.</i>				<i>No longer employed.</i>	<i>Known to have joined the forces.</i>
	<i>Over- time.</i>	<i>Normal time.</i>	<i>Short time.</i>	<i>All.</i>		
<i>Males.</i>						
September	36	602	260	898	102	88
October	52	668	173	893	107	106
December	130	656	108	894	106	133
<i>Females.</i>						
September	21	535	360	916	84	—
October	59	619	260	938	62	—
December	108	669	191	968	32	—

¹ The table should be read as follows: In the United Kingdom for 1000 males employed in July, 898 were still employed in September (of whom 36 were on overtime, 260 on short time, and 602 on normal time); the remaining 102 were no longer employed, but 88 of these were known to have joined the forces.

When the number in the last column is greater than in the last but one, fresh men must have been taken on in employment.

LONDON.

Industrial occupations, not including building, transport, or direct Government work.

Per 1,000 Males or 1,000 Females employed in July 1914.

	<i>Employed. Normal or overtime.</i>	<i>Short time.</i>	<i>All.</i>	<i>No longer employed.</i>	<i>Known to have joined the forces.</i>
<i>Males.</i>					
August 21 .	700	215	915	85	60
September 11	650	210	860	140	85
October 16 .	738	125	863	137	102
December 11	818	67	885	115	130
<i>Females.</i>					
August . .	515	395	910	90	—
September .	575	320	895	105	—
October . .	760	170	930	70	—
December .	840	105	945	55	—

Commercial Occupations and Wholesale and Retail Dealing.

<i>Males.</i>					
August . .	865	45	910	90	75
September .	837	38	875	125	117
October . .	845	20	865	135	130
December .	810	10	820	180	185
<i>Females.</i>					
August . .	765	192	957	43	—
September .	880	80	960	40	—
October . .	890	95	985	15	—
December .	895	90	985	15	—

We are now in a position to give an account of the state of employment in industrial occupations taken all together. In London a fortnight after the declaration of war only 70 per cent. of the workmen and 52 per cent. of the workwomen were in full employment; but only 9 per cent. of each were no longer employed, the remainder being kept on short time. There was a very creditable and successful effort made to spread out work in all districts and all industries. There is no published

record of the number of hours worked by those on short time, but it is probable that few lost more than half their wages in August, while by October the majority of them did at least three-quarters of their full work. Of the men who were no longer employed, two-thirds were known to have been called up as reservists or to have enlisted, so that the increase of actual unemployment of men was only $2\frac{1}{2}$ per cent. of all concerned. This statement excludes building, for conditions in that industry were not comparable with others; the truce in disputes that was arranged in August had the effect of increasing the employment by the execution of delayed contracts, and also it presumably transferred many men from 'dispute benefit' to 'unemployment benefit' and entitled them also to insurance payments, thus inflating the August percentages of columns 1 and 2, p. 7. The condition of women's employment, on the other hand, gave occasion for very serious anxiety, for it was doubtful whether even the partial employment existing could be maintained.

In September 5 per cent. more men in London had lost or left their employment, of whom half had joined the forces, and the number on short time was unaffected. With women there was on the whole a slight improvement, for 6 per cent. had been transferred from short time to whole time, while only $1\frac{1}{2}$ per cent. had lost work completely since the previous account. The report for the whole country was similar to that for London, but rather more favourable. Recruiting accounted for nearly all the men unemployed, but short time was rather more prevalent. A smaller proportion of women were without work, but (owing mainly to the condition of the cotton trade) a larger proportion were on short time. It was generally felt after comparison of all the

information, summarized on pp. 7, 10 and 11, that the worst of unemployment was over, and it was known from other sources that distress was less acute.

The immediate problem was to increase the employment for women in London and Lancashire. In London workrooms were opened with a fair measure of success ; and great, and ultimately successful, efforts were made to spread out, and place where most needed, the greatly increased quantity of Government contracts. In Lancashire little could be effected immediately.

In October every index in both tables shows a favourable movement. Recruiting had taken as many men as had lost work ; short time had become less frequent, and in London (at any rate) it was seldom more than one-quarter's time that was lost ; but women's unemployment was still so common as to be serious. The difficulty was by that time small enough to be grappled with, but it was incorrect to assume (as was commonly done) that there was no further problem as regards women and girls.

By December the demand for men could no longer be met and overtime was not uncommon, though short time also existed. In London and in the rest of the United Kingdom more men were accounted for as in employment or with the forces than had been employed in July.¹ It is not clear whence these men came, for the excess would have needed the great part of those who appear in columns 1, 2, 3 (p. 7) as unemployed in July, and as a matter of fact the percentages, &c., in December are little below those in July. Other reserves of labour must have been tapped, unoccupied and partly occupied persons diverted into industry, boys pushed forward, and

¹ Of course, recruiting from other occupations or from the unoccupied does not affect these figures.

old men retained. With women a great improvement was shown, though employment was not yet normal. Outside Lancashire there was as much overtime as short time, but there were still 3 per cent. completely unemployed in addition to the small number out of work in July. Domestic service is not included.

In January there was an improvement in the cotton industry, and a general demand for men. There was a slight set-back in women's employment on the whole; the linen, hosiery, lace, shirt, pottery and glass industries were each in a slightly worse condition than in December. The number of women of the live register is still increasing a little in February.

Turning now to commercial occupations in London (banking, insurance, &c., wholesale and retail dealing), in which clerks and shop assistants form the principal classes, we find similar phenomena month by month, but in a less acute form. Enlistment accounted for the men who had left their occupations more rapidly and completely. Short time was hardly serious, even for women, by the middle of September, and unemployment for women was only $1\frac{1}{2}$ per cent. in October. A number of women were transferred, in banks and elsewhere, to work formerly done by men.¹

The general conclusion as to the state of employment in February 1915 is that there is a widespread unsatisfied demand for men, co-existing with a small number unemployed who cannot as yet be fitted into any of the vacant places, either because the class of work they are accustomed to is not in demand, or because they are incapable of regular work. The great majority

¹ 'To-day the L.C.C. increased the wages of women temporary clerks from 25s. to 35s. a week. Since the war men clerks cannot be secured.'—*Pall Mall Gazette*, Feb. 16, 1915.

of women are in regular work, some are working overtime, more are on short time, but there is also a proportion out of work, about as large as in an ordinary year of rather slack trade. So favourable a Report as this would not have been anticipated last August ; it could have been foretold that some industries would be very busy, and that enlistment would give some relief, but it was expected that there would be districts and trades where the raw material was seriously short (which is occurring only in the linen manufacture and in a few other not very important cases) or where the demand, whether for home use or for export, was so ineffective as to leave large numbers out of work, and elaborate preparations were made to meet the expected difficulties in the winter. The reasons why these forebodings have not been realized are threefold. First, no one had had any experience of war on so large a scale, and, even if it was believed that Lord Kitchener's larger demands would be met, it was hardly realized that an army at war in winter needs continual replenishment of supplies other than arms and ammunition, and that an army in training eats heartily and needs a complete outfit of new clothes as well as rifles. Secondly, the very great elasticity of our industrial system, supposed to be over-specialized and unenterprising, was not taken into account, nor the enormous advantage of drawing materials from every country in the world, which has enabled traders to increase their supplies from a great miscellany of sources and so replace those which are closed. Judging from the detailed statistics of external trade, we may even expect that the difficulty of manufacturers will soon be, not to obtain orders, but to find labour to carry them out. Thirdly, people had underrated the general industrial and social intelligence of the ordinary members of the community,

who in fact obtained a very rapid grasp of the situation and of the possibilities of ameliorating it. It was not realized that the mechanism and means of obtaining information of the Government Departments (especially the Treasury, the Board of Trade, and the Local Government Board) are fully developed and have been greatly improved in recent years; and it was not anticipated that these Departments would at once invite and obtain the co-operation of many persons experienced in finance, in trade, or in social problems, and, avoiding the mistakes to which officials are supposed to be prone, develop immediately bold constructive policies. The machinery of the Labour Exchanges has been strained to the utmost, and has proved of enormous utility. In brief, the difficulties to be faced were not insuperable, and they were attacked with courage and knowledge.

Space does not permit an account of industries in detail, but a general view can be obtained by taking them in four groups: those producing luxuries or goods whose purchase can be postponed, those producing ordinary necessities, those manufacturing for export, and those producing war material or rendering direct services to the Army or Navy. In August there was an immediate contraction in the first three groups, while in the fourth great activity was at once shown and has continued without relaxation up till now. The luxury trades, especially those where men are employed in large numbers—piano-making, working in precious metals, watch-making, high-class tailoring, furniture-making and printing—are concentrated to a considerable extent in London, which was thus badly affected in certain boroughs. Similar trades throughout the country, and motor-car and cycle makers, suffered at once. Women are employed more extensively in the

production of clothes than in any other group of industries, and were very badly affected both by the cessation of orders for expensive goods and the check in the purchasing of cheap clothes. Employment became very bad in the pottery district and in the lace industry of Nottingham, and in both is still far below normal. Both men and women, of all social classes, engaged in theatrical, musical, or other occupations for providing entertainment have had to face a greatly diminished demand. There was a sudden check in the employment of domestic servants. By October many of these industries had returned to a certain equilibrium; after the loss of about 10 per cent. of their men to the Army, the orders for business printing, for everyday clothes, &c., were enough to keep the reduced staff in moderate work. Government contracts were deliberately spread out so as to reach the partly employed wherever possible; and it was soon evident that a nation at war needs not only the metal-workers, the clothiers, and the preparers of food, but also the services of leather-workers, carpenters, packers, and a great number of other trades. By December there was only a relatively small body of men or women who failed to get work in their old trades, and some of these were able to adapt themselves to other work.

Persons engaged in providing the nation with its daily bread and other primary necessities—agriculturists, transport workers, dealers, and a proportion of a great number of other industries—have been throughout as busy as ever, since we have been on the whole rather better fed than usual, many of the workers are in the Army, and it has been difficult in some cases to catch up the time lost by the general disorganization of August.

The industries engaged in manufacturing for export were very badly hit. Of these the cotton manufacture is

much the most important, and it was not till December that it showed signs of recovery from the effect of the complete upset of its elaborate credit system at a time when its outlook was already bad. There is reason to think that the prospect is now favourable. In some industries the home demand was stimulated by the absence of imported manufactured goods. In others, where the export trade is only a fraction of the whole, there has been little contraction. Coal is, after cotton, the most valuable of our exports, but enlistment has completely removed any surplus of labour that might have appeared from the check in the foreign demand. Almost the whole trade of export of herrings is gone, and there was a great loss of work for the women in this seasonal industry, but the men trawl for mines instead of fish.

There is no means of knowing how many persons are employed directly by the Government or in Government contracts, but the effect of the vast demands for the service of the war are visible in every district and in a majority of industries. The railways are overworked. The docks at the Mersey and Thames are congested, and one can only imagine vaguely the pressure at Southampton. Woolwich has made demands for labour which have affected all the trades whose members can turn to arsenal work, the shipbuilding yards are overfull with work, and the manufacture of small-arms has made a similar call. The woollen industries of the West Riding cannot cope with the demand (though the worsted manufacture is not pressed), and many firms in Northampton and Leicester are very fully occupied. Clothing contracts have relieved a great part of the distress among tailors and dressmakers in London, and the Army demands for carpenters exhausted the ordinary

supply and found work for some furniture workers. These statements by no means exhaust the list.

There is little doubt that the total amount of productive work being done in the country is more than would have been accomplished by the whole of the women and girls and boys and the depleted number of men in a normal winter ; there is, in other words, enough work for all. But it would be a mistake to suppose that every individual can find employment. The older men in the luxury trades, other skilled men whom the general rearrangement of industry has displaced, women workers in lace, in earthenware, in linen, and (so far) in cotton, high-class dressmakers, and many other smaller groups, have lost a great deal of their ordinary work and cannot readily turn to other work. The reasons why so little actual distress is found in most districts are that in very many households there are two or more workers, and if one is unoccupied the others may be busy, and in a vast number of cases the payments to soldiers' dependants ease the situation.

It is difficult to find out how much transference of labour from one occupation to another there has been. Certainly the change has not been accomplished simply by the enlistment of those who have lost work, for on the one hand enlistment from many industries (e. g. mining, linen, jute, brewing) accounts for more than the contraction of employment so that new hands have had to be found, while on the other hand, a low rate of enlistment (e. g. among cotton weavers, quarrymen) has coincided with considerable unemployment. Each busy industry has no doubt called on its own reserve of labour, unskilled labour has moved to where it was wanted ; partly skilled men have been put to more skilled work ; some of the great army of machine tenders have adapted

themselves to the motions of unfamiliar machines. A few cases are recorded where men have changed their trade completely, sometimes going from skilled to unskilled work, or filling vacancies in the post office, and in some others men have been able to adapt their skill to a new process. There has also been in the textile and clothing industries an adaptation of machines together with their minders. Many people must have been rapidly trained to perform some of those simple tasks which form so large a part of modern industry. In general, it has proved that with the growth of the great new paid occupation of being trained to fight as an outlet, the whole force of labour has got itself in a wonderfully short time into a new order, where vast numbers of people are doing work of a rather different kind from what they have formerly done. In the four months after the beginning of the war about 450,000 vacancies for adults were notified to the Labour Exchanges, of which nearly 350,000 were filled; in the corresponding period for the previous year the numbers were 286,000 and 232,000.

Nevertheless the changes have not yet used up all the available labour. In many trades in most districts overtime and short time co-exist,¹ and though equaliza-

¹ STATE OF EMPLOYMENT IN DECEMBER. UNITED KINGDOM.

Per 100 employed in July.

	<i>Males.</i>				<i>Females.</i>	
	<i>Left ordinary employ- ment.</i>	<i>Working over- time.</i>	<i>Working short time.</i>	<i>Increased number in employ- ment.</i>	<i>Working over- time.</i>	<i>Working short time.</i>
Iron and						
Steel .	7·5	12·1	7·1	—	—	—
Timber .	6·2	13·9	13·5	—	—	—
Leather and						
Leather						
Goods .	6·3	29·8	4·5	10·1	22·5	7·3
Hosiery .	·7	22·2	3·0	7·8	20·5	5·1

(Extracted from Cd. 7755.)

tion is generally difficult, it is probable that the work can with care be better spread out. There are few useful men quite out of work, but there is a considerable number of women and girls on short time or seeking employment, and a further great number of women in all classes who are usually not producing anything of real utility. It is for women to organize this force to supplement men's work or allow men to join the forces, if any further needs are apparent.

There seems no reason to be over-anxious as to employment when the war is over. The return from the colours and the closing down of production of war necessities can hardly be much more abrupt than the disturbance of the last year. The nation will still need to be fed ; many of those contracts and purchases which have been postponed for want of credit or income or inclination for enjoyment, or have not been carried out for want of material or labour, will take effect. While we shall find the purchasing power of the belligerent countries greatly diminished and exports to them slow to recover, we shall also find some slackening in their competition both at home and abroad ; and, as regards our export trade to neutral countries, it seems probable that quite soon they will be desiring more than we, with our curtailed labour force, can supply, and if such a state of things exists at the conclusion of the war there will be a brisk foreign and colonial demand. No doubt there will be temporary trouble and individual hardship, but the wonderful elasticity in production, which has been so useful for the purposes of war, will be equally available for the service of peace.

WHY WE ARE AT WAR

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PRICES & EARNINGS
IN TIME OF WAR

BY

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PRICES AND EARNINGS IN TIME OF WAR¹

1. CHANGE IN PRICE LEVELS SINCE 1850

It is well known that prices of food and other commodities in England have fluctuated considerably throughout the period, a century or more, in which they have been recorded with fair accuracy; yet people have such short memories and so soon become accustomed to anything that is reduced to routine, that each new price level is almost at once accepted as natural and customary. It is only quite recently that writers and speakers have used the 'percentage change of prices' as part of their ordinary vocabulary, and it is doubtful whether any large section of the population attach a correct and definite meaning to the figures. We can, however, without using any refined measurements, place the prices of the first half of the year 1914 in relation to previous years. From about the year 1850, prices in general rose, with minor fluctuations, for more than two decades, and reached a maximum in 1873-4; thence they fell, again with fluctuations, for twenty years, and reached a minimum in 1895-6; another long rise took place and culminated at the beginning of 1913. From March 1913 to July 1914 a steady fall was perceptible; it could not, of course, be foretold whether this was simply a reaction from

¹ This pamphlet contains the substance of a lecture delivered at the London School of Economics, February 22, 1915.

the high prices of 1912 or the beginning of another long period in which prices would fall year after year. In July 1914 prices of food were about the same as in 1910, and in that year, shortly before the second crest of the great movement, 1874-1913, these prices were back at the level of 1886. On February 1, 1915, prices were back at the much higher level of 1884, but still far below the maximum of 1874, and in fact lower than in most of the thirty years that followed the Crimean War. This general view, that we are now back at the prices of thirty to sixty years ago, will be confirmed in detail by those whose housekeeping memories extend so far back. The younger generation, who began housekeeping in the nineties, have bought in a rising market throughout their experience.

The above statements refer to a general average of food prices, where changes in the cost of bread, meat, sugar, tea, and other commodities to some extent balance one another.

I propose to examine why the movement of the last few months has taken place, what effect it has had on the real wages of the working class after allowance is made for the state of employment, and what factors are involved in the determination of the prices of the near future.

2. CAUSES OF CHANGE

If in July we had tried to forecast the effect of war on prices, we should have been able to pick out some movements as probable, all in the direction of increased cost, while some factors, which have proved important, would hardly have occurred to us. There would have seemed no reason why those goods which we produce at home, without supplementary imports, should alter

.

either in demand or supply ; such are vegetables, milk, and coal. In the case of coal, it might have happened that a diminution of export might increase the supply, and a falling off of manufacture in general decrease the demand, so that the price might fall. We should have expected fishing to be interrupted, but could not foresee whether the stoppage of exports would leave a sufficient home supply.

How imported goods would be affected would depend on their sources and also on the enemy's effective demand for them. If wheat, rice, tea, and coffee could not get to Germany, so much the more for the rest of the world. If continental sugar could not reach us, this still ought not to be important if it could reach a neutral Power, whose ordinary supplies could then come to us. We depend on Russia to a large extent for butter and eggs, and look to her to supplement the supply of wheat for ourselves and other countries. The lack of the dairy produce must be felt at once, but if the delivery of wheat was only postponed, its absence during the early spring would not necessarily cause much change in price.

As regards all imported goods, it was certain that increased insurance would raise the price, and it was probable that some cargoes would be destroyed, curtailing the supply. Insurance has proved to be very low, and destruction has been very limited. More important than either has been the delay in dispatch of goods owing to the failure of credit in August, and a further delay also because of the existence of the enemy's cruisers, and from the closing of some routes of trade, all causing a serious loss of time not yet recovered. It could hardly have been foreseen that the use of some ports exclusively for military purposes, a crush of

arrivals after the seas were clear, and a shortage of dock labour would cause serious congestion and delay at the ports—that, in fact, our imports would be so considerable that there would be difficulty in handling them.

No one could have struck a balance between the probable diminution of the quantity of shipping, owing to the elimination of the German merchant fleet, and the probable diminution of international trade; and it is doubtful, even now, on which side the scale would fall if the demands of the Admiralty for transport were not so great. The effect of the earlier demands for ocean transport of troops is still felt. The delay at the docks is responsible for a considerable part of the scarcity of ships. Now the rates for ocean transport are very elastic, and a small change in the quantity of shipping available has a great effect on freights; for it is not possible to increase quickly the number of ships at any particular port nor the total shipping of the world; the cost of transport by sea is but a small proportion of the whole cost of goods, and a slight rise of the wholesale market price causes a relatively considerable increase in the rates importers will pay. There is a competition as to which goods shall be carried first, and naturally those have priority for which most is paid. When the shortage is due to delay, it may happen that the shipowner loses as much by the diminution in the number of voyages as he gains by increased earnings per voyage.

The case of transport by land is similar. The railway lines and yards are soon congested; the rolling-stock, sufficient for carriage under ordinary conditions, takes too long on its round journeys; lines, yards, and stock are partly used for Government purposes, and goods

are delayed. Since in this case accommodation is not put up to auction, the companies (or the Government controlling them) has to decide on priority of delivery. It is a question whether arbitrary decision gives a better result than determination by the price offered by merchants.

Delay in delivery does not have the same effect on price as permanent deficiency of supply, if the stock in hand is sufficient and the ultimate delivery can be depended upon; but the merchants and the public may become unduly alarmed and force up prices unnecessarily.

In time of war or any other disturbance of normal trade, it is specially easy for the holders of any commodity, whose supply is temporarily short, to make a corner in it and obtain a monopoly price. If all the dealers are subject to the control of a single Government, the fixing of a maximum price may cause an actual cheapening, or even prevent the corner;¹ the purchase of considerable quantities at an arbitrated or arbitrary price by the Government may have the same effect. But if a considerable part of the supply is in the hands of foreigners, any artificial lowering of the price will merely check the importation of the goods, and even a Government cannot sell at two prices in the same market.

A further possibility in war time is that so many persons will be diverted altogether from production or engaged in making necessities of war, that the labour force will be insufficient for ordinary needs.

¹ The issue of maximum-price schedules in August, after consultation between the Government and merchants, was in its effect only a statement of what prices were reasonable in the ascertained conditions of supply, for the information of retailers and customers.

This consideration is likely to be important in the cases of luxuries and of manufactures generally and (to a less extent) of raw materials. But every belligerent nation takes special care to ensure its food supply, and it is quite possible that the world's supply of food will be greater than usual in 1915 if more land is brought under cultivation for the more important foods, and if sowing is not hindered nor crops destroyed to any great extent by actual field operations. Only a small part of the harvests of 1914 can have been lost.

Another factor often important in time of war is the issue of new currency, which will raise prices, or the restriction of credit and a consequently greater use of existing currency, which will lower them. For this reason it is very difficult to compare changes of prices in Germany and England.

We must be careful not to confuse the ordinary variability of harvests (such as the partial failure of the Australian harvest) with the special results of war.

3. EXPENDITURE AND PRICES

The principal objects of expenditure of the working class, placed roughly in the order of amounts spent by a working-class family with 35s. weekly, are rent (including rates), meat and bacon, bread and flour, coal and gas, vegetables, butter, milk, beer, tea, sugar, tobacco, eggs, and cheese. With a family living on £200 a year, service will come next to rent, and coal will be higher up the scale. In the case of a poor family with 25s. a week, meat is lower in the scale, butter is replaced by margarine, little is spent on milk, and less on eggs.

We have very little information as to the cost of some of these items; but for the majority we have the very careful records of prices paid throughout the

United Kingdom in the co-operative stores and other shops used by the working classes, collected by the Board of Trade month by month, and summarized in the *Labour Gazette*. It is to be regretted that the prices are not given in more detail, and that we are obliged to use only the percentages published by the Board of Trade, and the general results calculated by their formula; for it is very difficult without more detail to trace the effect on different incomes and different classes.

The following statements apply to various dates from February 1 to February 20, 1915; no doubt further changes will take place.

Rent. There are no records of any change of rent, but since so many men are no longer living in houses, and others have a diminished income, it is probable that houseowners have some difficulty in letting their property, and that some rents have fallen. Generally when prices are onerous there is a tendency to save money by crowding or seeking a cheaper house, and rents give way, but this compensatory action is small. Domestic service, in some districts, is a little cheaper since the war.

Meat. The prices of meat have moved in a very curious way. The available home supply has been good, but foreign shipments have been delayed, and (unless a considerable amount has been taken directly for the troops and not passed through the trade accounts) there has been a serious deficit in the supply of beef and mutton. An unusual demand has been made for foreign meat for the army abroad, and it is quite probable that the members of the army at home are on the whole consuming more meat than they did in civil life. Frozen meat has risen in price till it is at nearly

the same price as home-killed. The great part of the change took place in August (when the supply seemed short) and in September (when the military demands were felt). The price of mutton has risen less than that of beef, and of the finer joints less than that of the coarser. A leg of home-killed mutton is only $\frac{1}{2}d.$ or $\frac{3}{4}d.$ a pound dearer in February than in July, while coarse imported beef has risen $3d.$ a lb.; these are the extremes. The difference is quite important in the consideration of different classes of purchasers.

The price of pork has changed very little. Bacon is $1d.$ a lb. more than in July 1914, but not more than in 1913.

Bread and flour. The average price of the quartern loaf was $5\frac{1}{2}d.$ before the outbreak of war, rose to $6d.$ by August 12, to $6\frac{1}{2}d.$ in December, $7\frac{1}{4}d.$ at the end of January, and was $7\frac{1}{2}d.$ on February 8. The first-named price corresponds to wheat at $33s. 6d.$ a quarter, the last-named to $53s. 6d.$; a change of $10s.$ a quarter makes a change of $1d.$ the quartern. The loaf does not rise in proportion to the grain, since the cost of milling and baking do not change. The Prime Minister's statement on February 12 indicates that the change in freight and insurance for North American wheat only accounts for a third of a penny on the quartern loaf: for longer transport it will be a little more. The increase in price has not up till February corresponded to any diminution of supply, for the total wheat and flour available (including the home harvest, imports, and Canada's gifts) has been greater than the quantity for the same period (August to January) a year ago and practically equal to that two years ago. Nor has any evidence been produced as to any failure of the world's harvest as a whole, over the period June to February, which

includes the bulk of the harvests of both the northern and southern hemispheres ; the failure of the Australian yield is serious, but Australia only produces 2 or 3 per cent. of the world's supply, and the production of all countries is variable. The present high price seems to be due to nervousness as to the availability of the Russian supply before other sources are exhausted, and to doubt as to how far Europe will be able to obtain her usual harvest this year. Meanwhile, whatever dealers, millers, or farmers, at home or abroad, have owned the northern crop of last year have reaped a handsome profit that they had not sown.

Coal. The price of coal has been affected principally by difficulties of transport which have resulted in serious shortage in London and the south of England. A subsidiary factor has been the enlistment in large numbers of the more efficient coal-hewers and the difficulty of getting pit-props owing to some failure in the import of wood ; the working of mines is said to have been more expensive. If the collieries were not delayed and congested by the lack of railway facilities, the supply would be ample since exportation of coal has decreased greatly. The changes in price have varied greatly with the quality of coal, the class of customer, and the district. In London, good kitchen coal delivered by the ton was in February 1915 about 5s. per ton higher than in February 1914, and about 7s. 6d. higher than in July. The most expensive coal and anthracite had risen less, for customers of these have more storage room and need not buy at the high rates. The worst coal and the coal retailed by the hundredweight have risen most, owing to the immediate nature of the demand for it, but an increase of more than 6d. a cwt. seems to be exceptional. The rise seems to have been greatest in the residential

districts of the south, and has probably been much less in the neighbourhood of the mines in the midlands and north. Gas has risen slightly in some cities, but the penny-in-the-slot gas is the last to be affected. Coke is hardly obtainable. There will no doubt be further difficulties in the delivery of coal, but, if the whole problem is firmly handled and economy is practised in its use, there seems no reason for alarm. It should be noticed that in all cases of temporarily high prices every effort is made to postpone purchases and to economize consumption, so that relatively little is bought at the top price. In general, in competitive production and dealing, the retail price rises by a smaller percentage than the wholesale price, since dealers do not increase their own profits and charges; this is specially noticeable when the prices of bread and wheat are compared. But with coal there is a good deal of evidence, especially in London, that the dealers make extra profits when coal is dear.

Vegetables and fruit. Potatoes, the only (so-called) vegetable of nutritive value consumed on a large scale, are plentiful, cheaper than in July, and at about their usual price.¹ Other vegetables are as usual; oranges have been abundant, bananas and apples normal.

Butter and margarine. Butter, always subject to slight variations, was near its usual price in the autumn, and rose a little in January. Margarine has changed very little, if at all. *Milk* has been 4*d.* a quart in towns as long as the memory of man goes, with very rare and brief periods at 3½*d.* or 4½*d.* Just now there is an attempt in London to raise it to 4½*d.*, because of the alleged dearness of feeding stuff.

¹ There is some tendency for potatoes to rise in price during this month (February).

Beer rose 6*d.* a gallon (50 per cent.) or $\frac{1}{2}$ *d.* a glass (25 or 33 per cent.) in November or December. *Tea* has now felt the full effect of the increased duty and risen 3*d.* a pound. *Coffee* and *cocoa* have not changed.

The price of the cheapest quality of *sugar* was 2 $\frac{1}{4}$ *d.* in July and is now 3 $\frac{3}{4}$ *d.*; more expensive kinds have perhaps risen a little more. *Rice*, *oatmeal*, and *haricot beans* are at their usual price.

The wholesale price of *imported eggs* has been nearly 20 per cent. above normal; new-laid eggs are much as usual for the time of year. *Cheese* appears to have risen 1*d.* a pound. *Tobacco* has not changed, nor have *spirits*.

It is evident from this enumeration that the increased cost of living depends very much on the diet of the individual, and it is also clear that some prices are unstable and may change in the near future. Also, since the statements relate to average prices, they will not be true for all districts. For example, the price of the quartern loaf is stated to have increased by 2 $\frac{1}{2}$ *d.* in south-east London but only by 1*d.* in Scotland in the year ended February 1, 1915. Nor are the averages themselves unaffected by accident in the selection of price quotations. In many cases it is difficult to separate seasonal and accidental changes from those caused by the war.

4. WAGES AND EARNINGS

During the period of rising prices (1896–1913) rates of wages moved upwards, but spasmodically, and it is a matter of dispute as to whether cost of living or wages had increased most. In the year 1913 trade was extraordinarily good, and unemployment very slight, and increased wages were reported in many industries, so

that by the summer of 1914 (when prices had moved downwards) it is probable that the working class were definitely, but not greatly, better off than twenty years before or than at any previous date in the modern era. There was, however, a general and well-founded opinion among the working class that their progress had been unduly small in comparison with the enormous recent accretion of wealth. We must now try to compare their present spending power with that of last summer, and bring it into relation with the rise of prices.

From August 1914 till the end of January there were extremely few changes of rates of wages ; the most important exception was a marked rise of seamen's rates in sympathy with war risks. In February 1915, on the other hand, hardly a day passes without a report of negotiations for higher wages, which seem to be uniformly successful for the employees. The most notable change, so far, has been an increase of 3s. a week (2s. for the higher grades) to railway men. It will take a long time for the movement to extend over the whole body of workmen, and it has not as yet spread to workwomen.

Earnings depend on the two factors, rate of payment and amount of employment. While the former has changed little, the latter has increased from the middle of August till the present time (except for a slight recent set-back for some women¹). In November the men who had not joined the army were at least as busy as in July, and by the end of January unemployment was lower than ever recorded before, and overtime was general in many industries. The position was not so favourable for women, who had perhaps 5 per cent. less weekly work and pay in January than in July. It

¹ Oxford Pamphlet, *The War and Employment*.

would be difficult to decide whether the average earnings of all persons employed at the end of January were greater or less than the average for the same persons in July, but the evidence suggests that they were slightly greater.

We must consider also the large number of families in which the principal earner has enlisted in the army or been called to the forces. In the case of agricultural, unskilled, and casual labour, the family is in general better off than before, with regular money and without the chief food-consumer ; for partly-skilled labour there is perhaps little to choose ; the families of skilled labourers have made a sacrifice. Again, it is difficult to say which side the balance inclines ¹ ; whether the wives and mothers all together have, after paying rent and fixed expenses, less or more than before to spend for food and clothes, allowance being made for the saving of the absentees' costs. Where the soldier had no one to support, no numerically important question arises.

In the aggregate, then, it is probable that the working class would, if prices had not changed, been slightly better prepared to meet the expenses of living in January than in July. From August to October they were worse prepared.

¹ The separation allowance in February for the wife of a corporal or a private is 12s. 6d. weekly, with an addition of 2s. 6d. for each girl under 16 years or boy under 14 years, up to three children, and 2s. for each further child under the same ages. In London, 3s. 6d. further is given. The average wages of men for all occupations is 28s. to 30s. A wife with three children, receiving the allowance of 20s. a week, without having to provide for her husband, is about as well off as if he was at home and earning the average wage, assuming that he kept an ordinary sum weekly for his private expenditure. From March 1st the scale is raised so that a wife with three children will have 23s.

5. EARNINGS IN RELATION TO PRICES

The Board of Trade's method of calculating the general change of food prices is to take the standard budget of working-class expenditure—so much bread, flour, home and foreign meat, &c.—found by their inquiry in 1904, and having calculated its cost at the prices commonly paid in July, August, &c., to express the result as a percentage of the cost in July. Thus this standard budget cost 22s. 6d. per week in 1904,¹ and from the *Labour Gazette* figures it appears that the same quantities of food would have cost about 25s. in July 1914. Taking 25s., then, as the basis, we have the following results :

	<i>Cost of week's food ration for family.</i>		<i>Percentage increase above July.</i>
1914.	s.	d.	
July	25	0	—
August 8	29	0	16
„ 29	27	9	11
September 12	27	3	9
„ 30	28	3	13
October 30	28	3	13
December 1	29	3	17
1915.			
January 1	29	9	19
February 1	30	9	23

The above figures relate to large towns ; for small towns the rise is 1 or 2 per cent. less throughout. There is no information as to the country. If the comparison were made with February 1914 instead of July the increase would be 19 instead of 23 per cent.

In order, then, that the average working-class town household should be in exactly the same position in February as in last July, an additional income of 5s. 9d.

¹ See *Cost of Living in 1912*. Cd. 6955 of 1913, pp. 299, 300.

would be needed for food, together with from 6*d.* to 1*s.* (rarely 1*s.* 6*d.*) for coal, and a few pence for beer. The average income, taking all the towns in the United Kingdom, even if it has risen at all, can hardly have provided 2*s.* towards this.

This, however, is a case where calculation by averages only makes a starting-point for the examination of the movements, for the effects on different classes have been very different.

The table on p. 18 shows roughly, but with sufficient accuracy to afford a general view, the ordinary expenditure of certain families : (*a*) the poorest of London households that are able to pay their way, as described by Mrs. Reeves in *Round about a Pound a Week* ; (*b*) the unskilled labourer in a provincial town ; (*c*) the general average of rather superior town workmen, where one of the children is earning a few shillings to supplement the family income. The increases are estimated to the middle of February.

It must be remembered that food accounts for only two-thirds of working-class expenditure when earnings are moderate ; the fraction is less at the lowest end of the scale, where rent absorbs a greater proportion of income, and less again at the upper end, where there is free money for other kinds of expenditure. Except in the cases of coal and beer, there has been little or no change in the purchasing power of that part of income not spent on food. The percentages quoted for changes in food prices must not, then, be applied to the whole of income.

The unskilled workman with small regular time-wages—low because they are regular—has been most badly affected ; for he has had no opportunity of increasing his earnings, unless by the accident of overtime ; he

	A. London poor.			B. Labourer in provincial towns.			C. Artisan in provincial towns.		
	Normal expenditure before the war.	Increase in cost since July.		Normal expenditure before the war.	Increase in cost since July.		Normal expenditure before the war.	Increase in cost since July.	
	s. d.	s. d.		s. d.	s. d.		s. d.	s. d.	
Rent	7 0	—		5 0	—		6 6	—	
Coal, gas, coke, wood ¹	2 4	7 ¹		1 6	5		2 0	6	
Other expenditure	2 9	—		1 6	—		7 6	—	
	12 1	7		8 0	5		16 0	6	
Bread and flour	3 1	1 2		3 3	1 2		4 0	1 3	
Meat and bacon	2 2	6		4 3	8		7 0	2 4	
Butter, milk, eggs, cheese	1 1	1 ²		3 0	2		5 6	10	
Tea	6	1		9	1		1 3	2	
Sugar	5	3		9	6		1 1	8	
Vegetables	1 1	—		1 1	—		2 2	—	
Other food	7	—		2 3	2		4 0	6	
	8 11	2 1		15 4	2 9		25 0	5 9	
<i>Total</i>	21 0	2 8		23 4	3 2		41 0	6 3	

¹ The coal expenditure is as in the winter and the increase as compared with last February.

² Margarine has not risen in price; very little fresh milk, eggs, or cheese are used.

spends a larger proportion on bread, which has by now risen more than meat, than a man with a larger income ; the little meat bought is probably the coarser part of foreign meat, which has risen more per pound than any other ; and he buys coal at the greatest disadvantage. Further, he is already on the cheapest diet known to him, and has little power to substitute other articles though they may have risen less. The same remarks apply to agricultural labourers in the numerous counties where pay is low.

The men, relatively few but not negligible in number, who work in those trades which are still badly affected by the war, have not their ordinary wages, and, unless other members of their household are doing unusually well, are doubly hit by lowered earnings and raised prices. If they are skilled men they have probably some resources, and may be no worse off than unskilled men in regular work.

There is no means of telling how far the unemployment and partial employment of women and girls falls on those who have a household to support and how far on independent workers. The former have special claims on the war relief funds, the latter (if they are living with their relations) have often some margin when in good work.

Casual labourers who before the war desired, but were unable to obtain, regular work can now in almost all districts get full employment ; one extra day a week compensates for the higher prices in their budgets.

Skilled and partly skilled men usually in regular work have not in general improved their earnings and are now feeling the pressure of increased prices. It is not easy for them to lower their standard of living abruptly, since rent and some other expenses are fixed. In many

cases, both with them and the middle class, a reduction in expenditure on amusements, beer, and tobacco would ease the situation perceptibly.

There remain the numerous cases where, owing to increased demands and a reduction of the staff, there is pressure of work ; this very generally means larger earnings on price-rates or extra payment for overtime. Where there has been no extra payment, there is now a legitimate demand for higher weekly wages.

The very large number of the middle class who live on small fixed salaries or fixed pensions or interests, and have always difficulty in maintaining the standard which their work or their habits require, are badly affected ; but since food and fuel form a smaller proportion of their expenditure than of the manual working class the pressure on any resources they have is not so great as in the case of a man supporting a family on 30s. a week.

This brief analysis shows that we are not justified in measuring the average rise in prices against the average improvement in employment, and, if we find equality, assuming that all is well. Some are prosperous, others find a pressure which they can bear cheerfully if it comes inevitably from the state of war, and others find the struggle to make the two ends meet more hopeless than ever.

A great deal of relief is being given by the feeding of school children, and this can be increased for the classes worst affected. Relief can also be given from the Prince of Wales's fund, on which only small calls have been made during the last few months. It may be presumed that the scale allowed, which seems to have been based on some measurement of the minimum necessary for subsistence, will be raised to meet the new prices of bread and meat. There seems to be

a good case for raising the wages of unskilled public employees who have had no opportunity of improving their earnings.

There is, however, another aspect of the whole question. We have got into the habit in recent years of assuming that wages ought to rise at least in proportion to prices, without considering closely whether there is any economic connexion between the two; and, since a rise in the standard of living is desirable and the prevalence of this view strengthens the bargaining power of workmen, there has been no need to criticize it too minutely. But at the present time the question is how to maintain efficiency at the minimum expense, so as to have the greatest surplus for national purposes and not to draw unnecessarily on the future, nor can we devote special attention just now to the problem of the reduction of destitution. It was to be expected that real wages would fall, and that every one with any margin of income would have to draw on that margin. Now the calculations made above, and the percentage increase of cost of living generally quoted, are on the assumption that expenditure continues on the same articles in the same quantities as before. If there were a real shortage of wheat or meat or sugar it is obvious that this would be impossible. We ought, therefore, to inquire what kind of economy must be practised, if an unchanged income is to be spent at the risen prices. Every careful housekeeper has diminished her purchases of those commodities whose prices have risen most. Frozen meat is needed by the army, and relatively more English meat is used at home. Mutton, pork, and bacon have risen less than beef, and less beef is bought. Sugar is dear and is strictly economized. Margarine is unchanged in price

and is used more than butter. Eggs are always an expensive form of nourishment and can be dispensed with. Oatmeal and potatoes, whose prices are no higher than usual, can be substituted in part for wheat. Beer-drinkers can take to cocoa as a Lenten penance, and perhaps learn to enjoy it. Where households have already practised by necessity the cheapest way of obtaining nutrition they are not able to lessen their trouble by substitution, especially as bread and the cheaper kinds of meat have risen more than most commodities, and they already use margarine instead of butter, and economize in sugar. In all other cases, part of this rise of 23 per cent. can be evaded, and there is no doubt that this is done to a large extent. By a careful selection of meat, economy in tea, butter, sugar, and eggs, and the increased use of oatmeal, potatoes, margarine, and cocoa, it is quite likely that the normal expenditure of 25*s.* would be increased to only 27*s.* 6*d.* instead of to 30*s.* 9*d.* The result would be, of course, less agreeable, but it is not reasonable to say that its diminution in satisfaction would be properly valued at as much as 3*s.* 3*d.*, the difference between the new cost of the former ration and the cost of the curtailed ration—there is no practical measurement as to the loss—and the nutritive value should be as great as before.¹ This perfectly reasonable method of compensating the increased cost of some commodities by a rearrangement of purchases is, in fact, generally practised and its effect is always to discount the measurement

¹ As regards coal, it is to be noted that a great part of working-class cooking is done by penny-in-the-slot gas, and except in specially cold weather other fuel is not used extensively. Since gas fluctuates little in price and has about the same cost for cooking as coal at a moderate rate, many people are able to evade a great part of a rise in the price of coal.

obtained by a pedantic calculation on an unchanged budget. This is not, of course, to say that increased prices have no injurious effect, nor to suggest that substitution can go on indefinitely.

As regards the future it is impossible to do more than indicate the more important factors. The wheat supply seems secure, and if the Argentine harvest is good and the Russian harvest can be made available without prohibitive cost of transport, we should get the loaf back at $6\frac{1}{2}d.$, as soon as the future is clear. The price of meat will fall, when we eat less ; there is little present failure in the supply, and there are delayed cargoes still to arrive. Sugar also should fall, if there have been increased plantings in the southern hemisphere, as soon as the Government's stock runs out. Other commodities will no doubt continue to be attracted from slightly altered sources at about their present prices. We have probably seen the worst of the congestion of shipping and railways and may have passed the maximum of freights. But any unfavourable harvest and any disturbance to transport is likely to have an exaggerated effect on prices in the present nervous condition of the markets. Meanwhile, high prices have the advantage that they check wasteful consumption and encourage supplies from overseas.

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